

• SERVICE  
MANUAL

ST 4.33

marantz®

Model ST 4.33

Turntable

## FEATURES

Front loading, drawer type, full automatic, direct drive, linear tracking with random program, reject, repeat, cueing, backward search and forward search (2-steps speed), speed selector and sensor change selector.

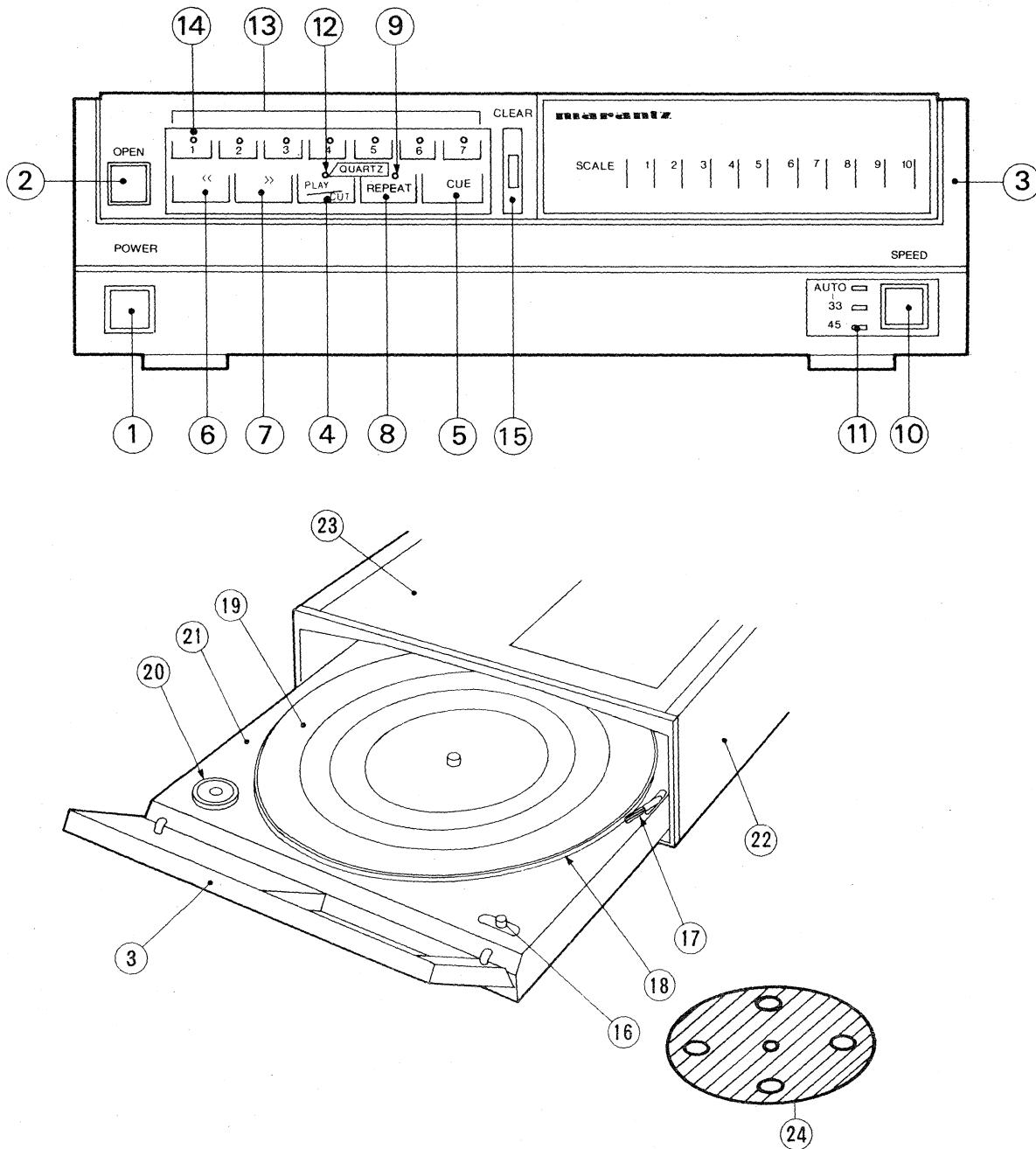
## SPECIFICATIONS:

Type	2 speeds, direct drive, linear tracking, fully automatic turntable
Platter	Aluminum alloy die-cast, 295mm diameter
Motor	DC coreless quartz direct drive
Speed	2 speeds; 33-1/3 and 45 rpm
Pitch control range	$\pm 3\%$ or more
S/N (DIN B)	60dB or more, Test record: DIN45544, Test equipment: by DIN45500
Wow & Flutter (DIN B)	0.2% or less, Test record: DIN45545, Test equipment: by DIN45507
Tonearm	
Effective length	95 $\pm$ 1mm
Cartridge	
Frequency response	20 - 20,000Hz
Output voltage	3 - 10mV at 1kHz, 5.6 cm/sec, Test record: DIN45543
Channel difference	2dB or less at 1kHz, Test record: DIN45543
Channel separation	18dB or more at 1kHz, Test record: DIN45543
Tracking force	1.5 gram $\pm$ 0.3 gram
Stylus tip	0.6 mil diamond stylus
Power source	100/120/220/240V 50/60Hz, 220V 50Hz for Europe, 240V 50Hz for UK and Australia
Power consumption	12W $\pm$ 25%
Dimensions	320(W) x 335(D) x 100(H) mm
Weight	7 kg
Accessories	45 rpm adaptor, 2 pcs of 1-P RCA cords (green and black), masking sheet

**NOTE:** Nominal Specs represent the design specs; all units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit Specs represent the absolute worst condition which still might be considered acceptable; in no case should a unit perform to less than within any Limit Spec.

Lubrication of the mechanism is not required. However, whenever a unit is brought in for adjustment or repair, always use good common sense ... clean any dust or dirt from mechanical parts and if moving parts do seem to bind, check for dirt. If necessary, add a very fine film of light-weight specially formulated lubricant.

## DESIGNATION



1	Power Switch Button	11	Speed Indicator	21	Cabinet
2	Open Button	12	Quartz Lock Indicator	22	Case
3	Front Door	13	Random Program Button	23	Dust Cover
4	Play/Cut Button	14	Random Program Indicator	24	Masking Sheet
5	Cue Button	15	Program Clear Button		
6	(<<) Button	16	Sensitivity Switch		
7	(>>) Button	17	Stylus Cleaner		
8	Repeat Button	18	Turntable Platter		
9	Repeat Indicator	19	Rubber Mat		
10	Speed Change Button	20	EP Adaptor		

## DISASSEMBLING INSTRUCTION

### 1. Disassembling Housings (See fig. 1)

- (1) Activate turntable by power switch on.
- (2) Draw-out main cabinet fully by pressing open button.
- (3) Switch off the power by pressing power button.
- (4) Close front door by hand.
- (5) Remove top lid.
- (6) Mount stylus cover and then dismount rubber mat and turntable platter.
- (7) Remove 2 pcs. of screws (A) from C-shaped angle (2).
- (8) Dismount front frame.
- (9) Remove 4 pcs. of screws (B).
- (10) Place turntable unit upside down on the table which surface is soft enough to protect the unit from any damage, and then remove 6 pcs. of screws (C) to dismount side cover.

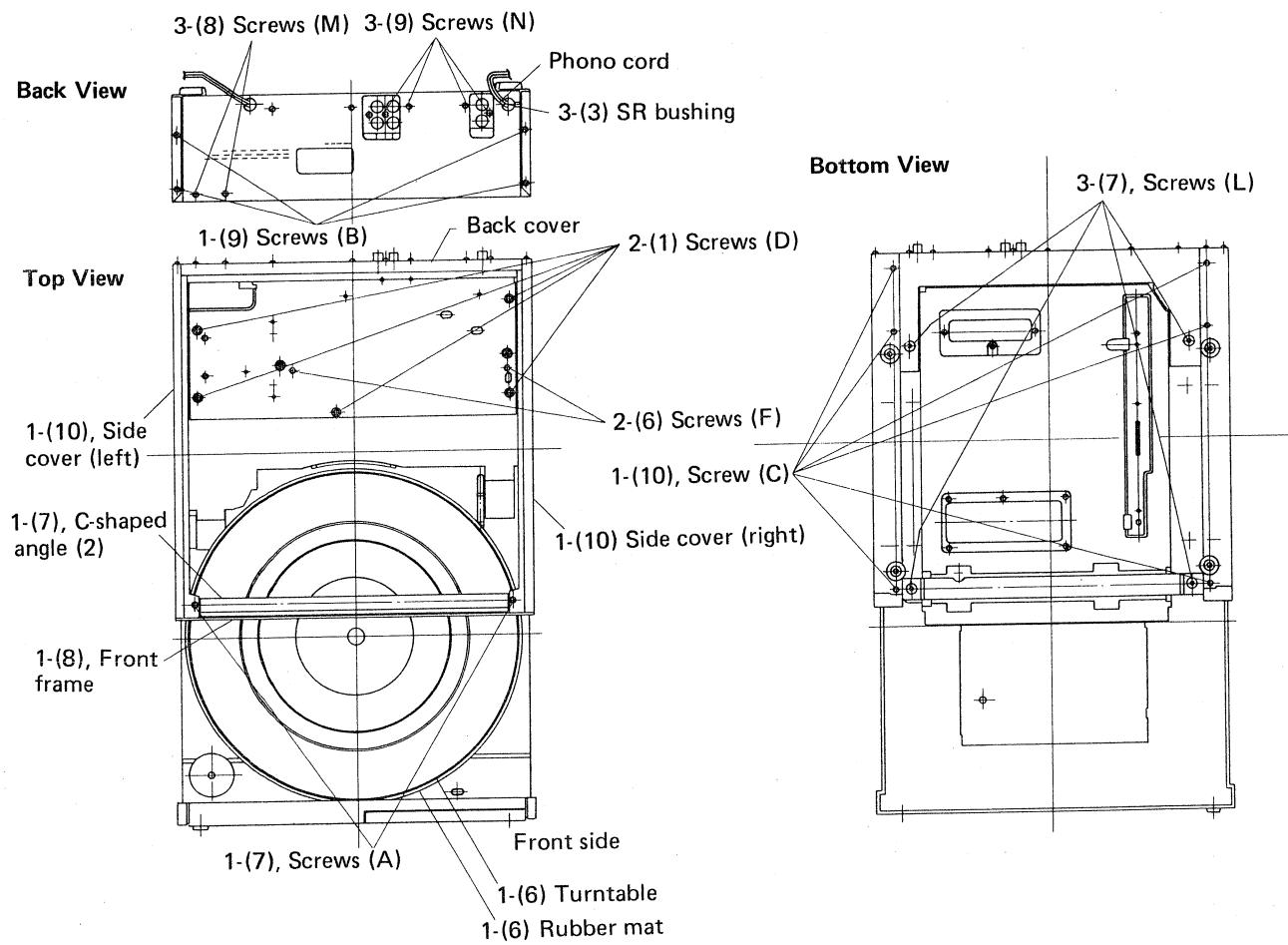


Fig. 1

## 2. Disassembling tonearm mechanism

- (1) Move tonearm base to the center of guide bar and then remove 5 pcs. of screws (D) from tonearm chassis. (See fig. 1, 2)
- (2) Pulling front edge of the tonearm chassis upward by hand, remove 4 pcs. of screws (E) from top of mechanism cover. (See fig. 3)
- (3) Unsolder soldering point (A) connected to lead wires from tonearm mechanism ass'y and muting circuit ass'y, and then disconnect connector (A) from control PWB ass'y (2). (See fig. 15)
- (4) Dismount tonearm mechanism ass'y. (See fig. 4)
- (5) Dismount tonearm drive motor. (See fig. 4, 5)
  - 1. Take off fastner for lead wires.
  - 2. Peel off fixing tape for lead wires.
  - 3. Remove drive belt for motor.
  - 4. Pull out drive motor.
  - 5. Remove 2 pcs. of rubber caps.
  - 6. Remove pulley.
- (6) Dismount tonearm ass'y. (See fig. 2, 4, 5, 6)
  - 1. Take off hook of rope spring for tonearm ass'y. (See fig. 4)
  - 2. Locate tonearm base at the center of guide bar by hand.
  - 3. Remove 2 pcs. of screws (F) from bottom side of tonearm chassis. (See fig. 1, 2)
  - 4. Holding tonearm base by hand and pull it forward so that tonearm ass'y is remove from the chassis.
  - 5. Pull out guide bar holder. (See fig. 6)
  - 6. Pull out guide bar from tonearm base. (See fig. 6)
- (7) Dismount slit plate ass'y. (See fig. 6)
  - 1. Remove tension coil spring which is mounted between slit plate and tonearm base.
  - 2. Shift slit plate to the left end of the slit, and then pull upward.
- (8) Dismount position sensor PWB ass'y. (See fig. 7)
  - 1. Place tonearm chassis upside down.
  - 2. Remove 2 pcs. of screws (G) from guide plate. (See fig. 7)
  - 3. Remove 2 pcs. of screws (H) from position sensor ass'y. (See fig. 7)
  - 4. Peel off insulation tape.
  - 5. Remove one piece of each screw (I) from an upper PWB and a lower PWB. (See fig. 7)
- (9) Dismount mechanism cover. (See fig. 2)
  - 1. Remove 2 pcs. of pivot screws (J) from left and right.

## 3. Disassembling back cover.

- (1) Unsolder 4 pcs. of terminals (B) and remove 2 pcs. of screws (K) from terminal cover. (See fig. 15)
- (2) Unsolder a grounding wire of back cover (C) from muting circuit ass'y. (See fig. 15)
- (3) Remove phono cord and SR bushing from back cover. (See fig. 1)
- (4) Disconnect connector (B) connected between back cover PWB and Control PWB (2). (See fig. 15)
- (5) Push down brush into cabinet.
- (6) Place turntable unit onto the table upside down.
- (7) Remove 2 pcs. of screws (L) from back cover so that the cover is disassembled. (See. fig. 1, 15)
- (8) Dismount power transformer. (See fig. 9)
  - 1. After disassembling back cover, remove 2 pcs. of screws (M) from back cover.
  - 2. Disconnect connector (D) for secondary so that power transformer is dismounted. (For 4 voltage versions, unsolder change over switch before disconnect (D).)

### Note:

In case of replacement of power transformer only, take step (1) and (8) so that power transformer is dismounted directly.

- (9) Remove 4 pcs. of screws (N) from back cover so that power supply circuit (2) is dismounted. (See fig. 1, 9)
- (10) Remove 2 pcs. of nuts (A) so that power supply circuit (1) is dismounted. (See fig. 9)

### Note:

In case of 4 voltage version, change-over switch can be dismounted by removing 2 pcs. of screws (D).

#### 4. Disassembly of bottom plate (See fig. 11)

- (1) Dismount of stopper plate. (See fig. 8, 10)  
Follow to step 3-(6), remove 4 pcs. of screws (P) from bottom of cabinet so that stopper plate of left and right can be removed, and then roller (A) can be removed.
- (2) Dismount of power switch. (See fig. 10, 11)
  - 1. Remove 2 pcs. of screws (Q) from bottom plate and clear the crest (A) provided with switch holder.
  - 2. Remove bottom plate ass'y by means of lifting by hand.
  - 3. Remove 3 pcs. of screws (R) from rack (A) so that mechanism portion of power switch is removed. (See fig. 8, 11)  
(Carefully remove the mechanism, otherwise switch ball may be remained at bottom plate side.)
  - 4. Releasing latch (B) which holds micro switch, and then push the switch by a small stick or screw driver through square hole so that micro switch and lever can be removed. (See fig. 11)
- (3) Dismount muting circuit ass'y. (See fig. 11)  
Remove a nut (B) from PWB and then unsolder (D) so that muting circuit ass'y can be dismounted.
- (4) Dismount control circuit ass'y (2). (See fig. 11)  
Remove 2 pcs. of nuts (C) from PWB so that control circuit (2) can be dismounted.

#### 5. Disassembly of cabinet

- (1) Dismount protection cover. (See fig. 16)
  - 1. Follow to step 4-(1), remove a screw (S) from the center of protection cover.
  - 2. Deflect the cover so that the cover is released from crest of cabinet.
- (2) Dismount control circuit ass'y (1). (See fig. 12, 13)
  - 1. Remove 4 pcs. of screws (T) from the circuit (1). (See fig. 12)
  - 2. Dismount 12 pcs. of connectors (E) from back side of the PWB ass'y so that the circuit (1) PWB ass'y (1) can be dismounted. (See fig. 13)
- (3) Dismount main motor. (See fig. 12, 13)  
Remove 3 pcs. of screws (U) and 4 pcs. of screws (V) from the PWB ass'y so that the motor can be dismounted. (See fig. 12)
- (4) Dismount mechanism of drawer. (See fig. 12, 13)  
Remove 2 pcs. of screws (W) so that the mechanism can be dismounted.
- (5) Dismount sub-motor. (See fig. 13)
  - 1. Remove 3 pcs. of screws (X).
  - 2. Remove a set screw (Y) from worm so that the motor can be dismounted.
- (6) Dismount switch PWB ass'y. (See fig. 13)  
Remove 2 pcs. of screws (Z) from the PWB.
- (7) Sensitivity change-over PWB ass'y  
Remove 2 pcs. of screws (a) from the PWB. (See fig. 13)
- (8) PTR PWB ass'y. (See fig. 13)  
Remove a screw (b) from the PWB.
- (9) Front door ass'y. (See fig. 14)
  - 1. Place the cabinet upside down.
  - 2. Release 3 pcs. of screws (c) fitted to hinge portion of the door ass'y.
- (10) Cover (See fig. 17)  
Remove a screw (d) from inside of the door, and then release the latch so that the cover can be dismounted.
- (11) Function control PWB (1) ass'y (See fig. 14)  
Remove 4 pcs. of screws (e) from the PWB ass'y.
- (12) Hinge retainer (1) and hinge plate ass'y (2) (See fig. 12)
  - 1. Place the cabinet upside down.
  - 2. Remove a screw (f) from hinge retainer.
- (13) Switch-spring (2) and function control PWB (2) ass'y (See fig. 13)
  - 1. Remove a screw (g) from switch spring.
  - 2. Remove a screw (h) from the PWB.
- (14) Leaf switch ass'y (See fig. 13)
  - 1. Remove 2 pcs. of screw (i) from the hinge angle ass'y.
  - 2. Remove a screw (J) from the switch.

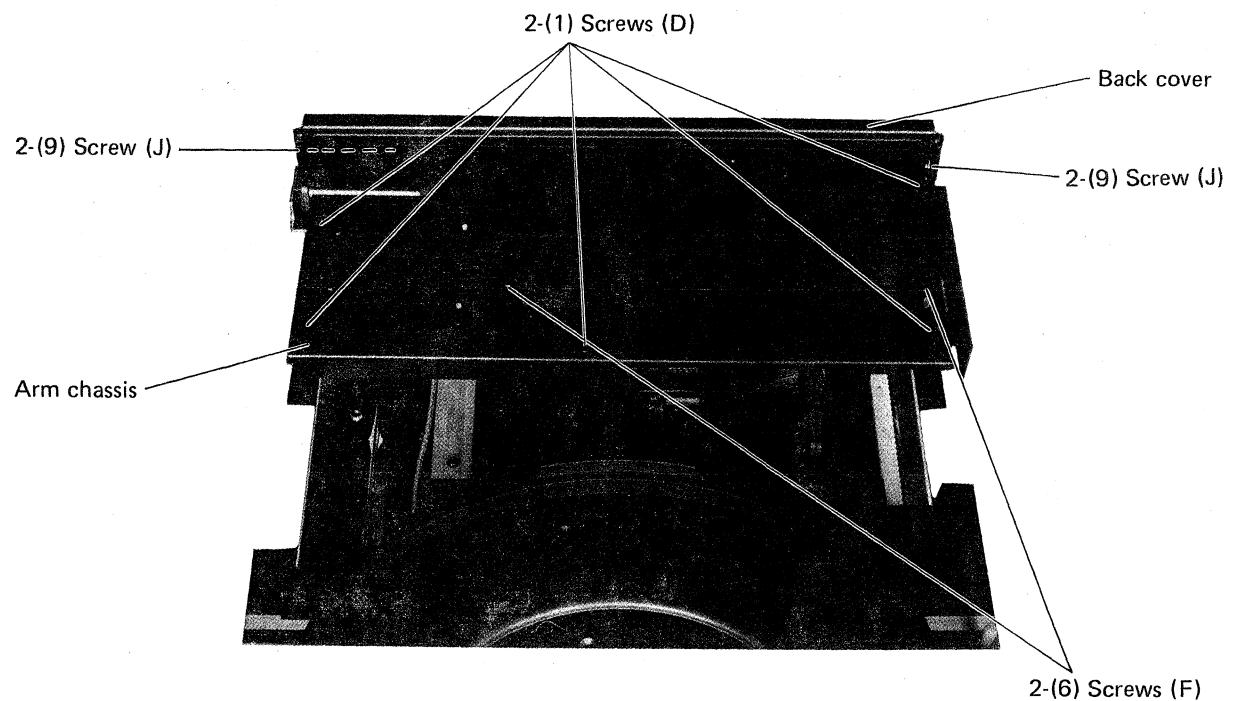


Fig. 2

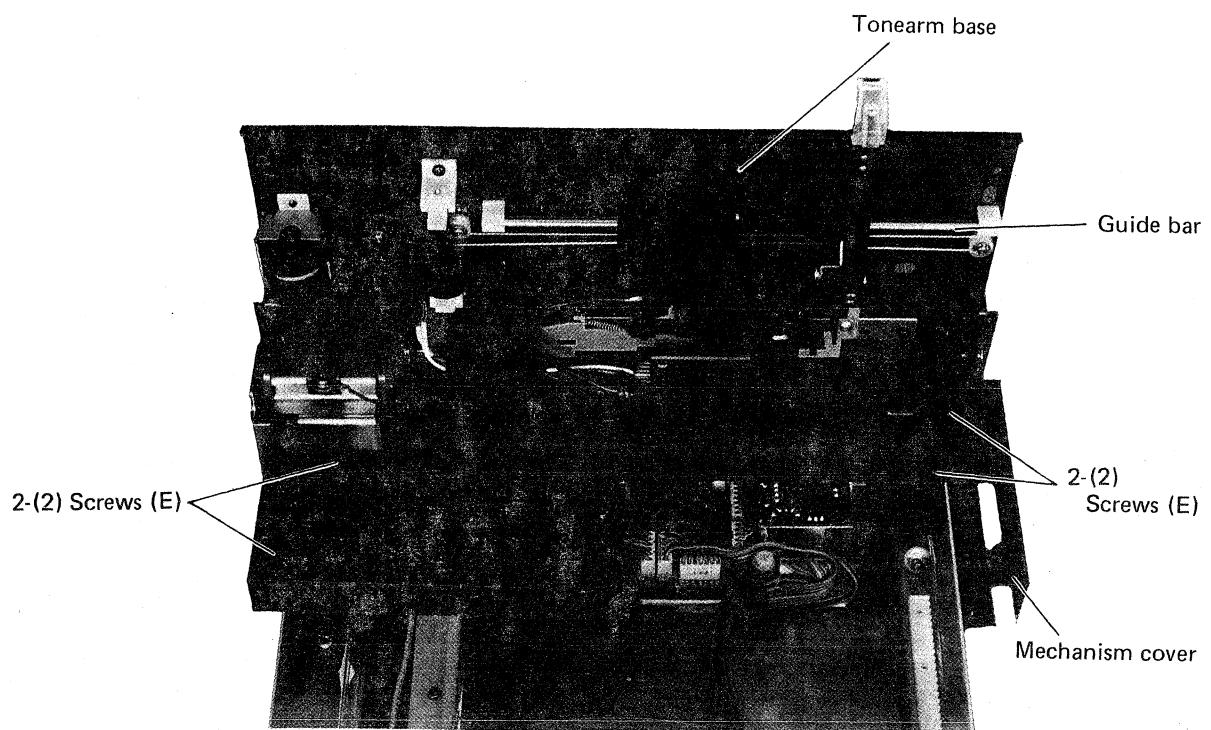


Fig. 3

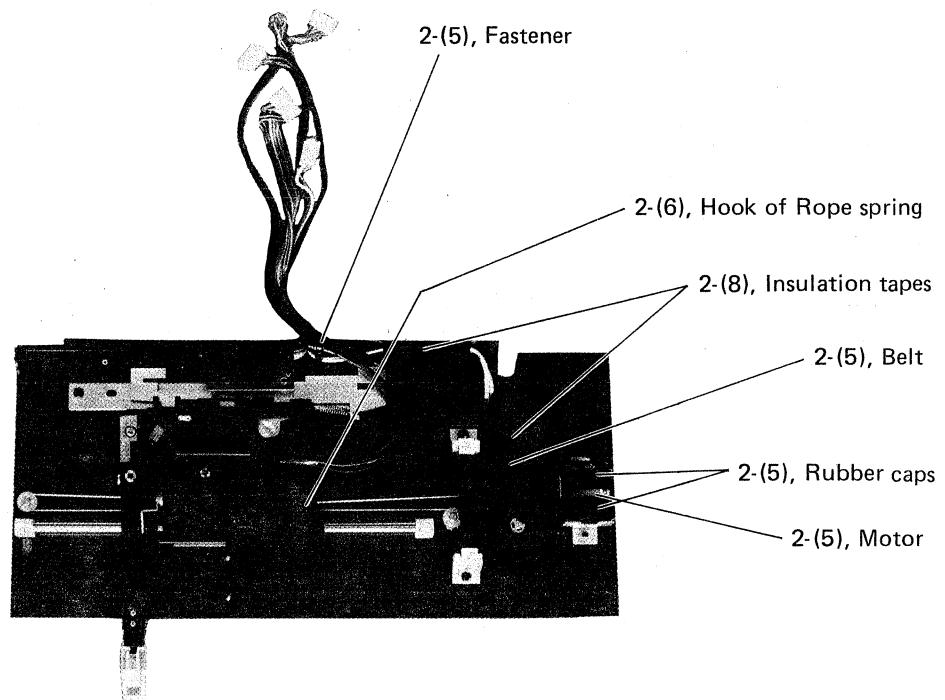


Fig. 4

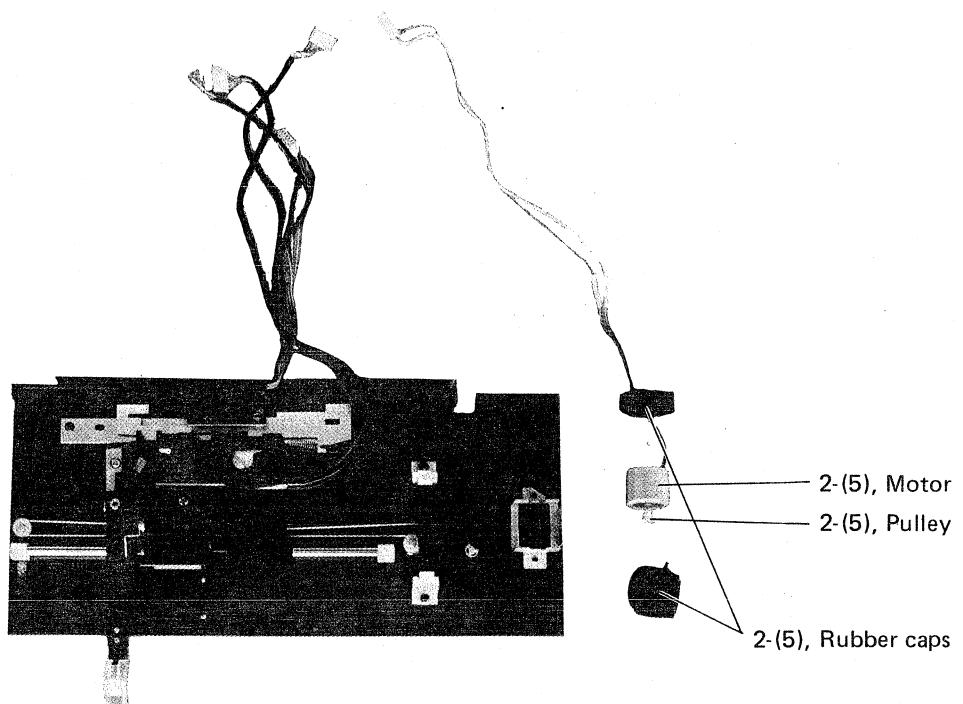


Fig. 5

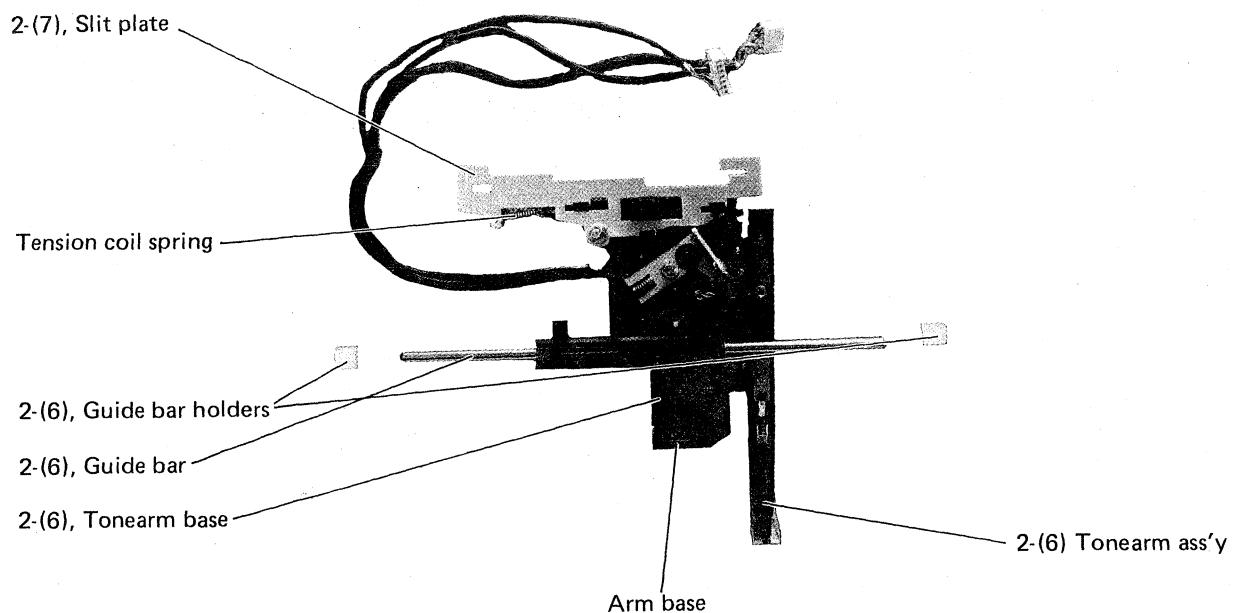


Fig. 6

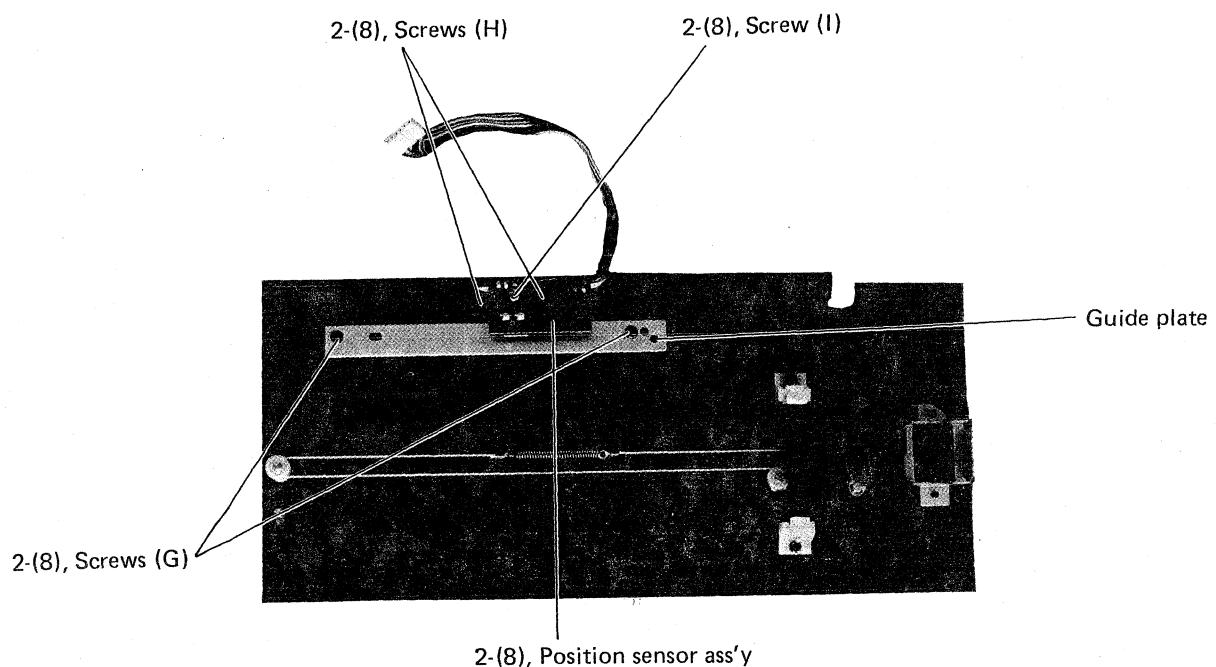


Fig. 7

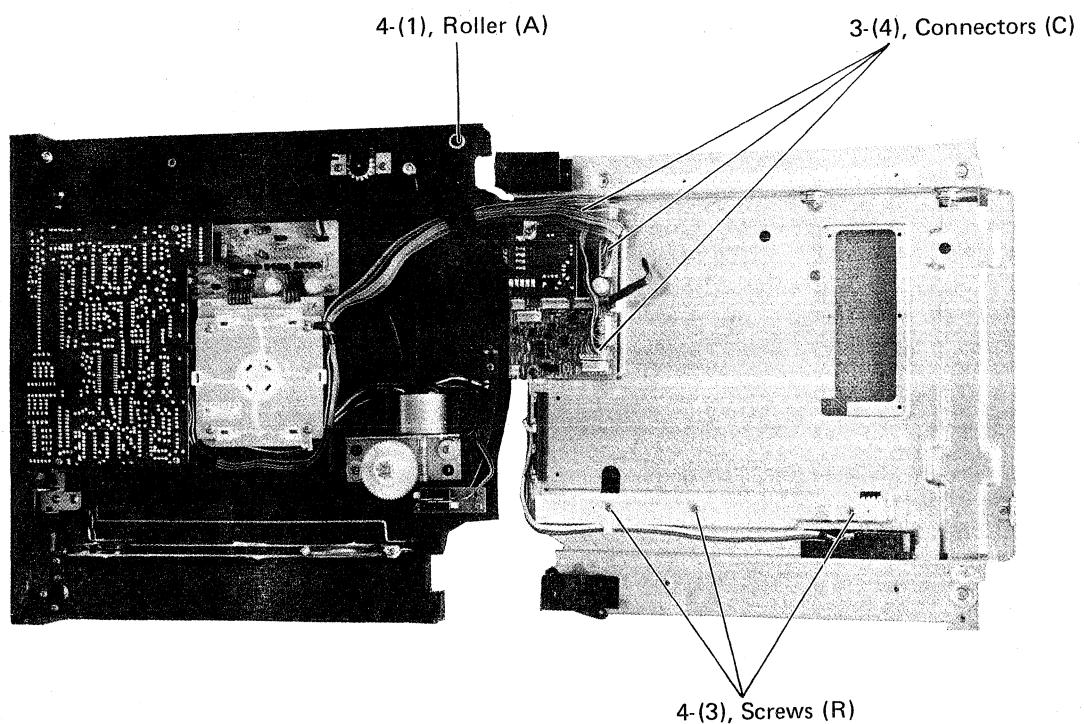


Fig. 8

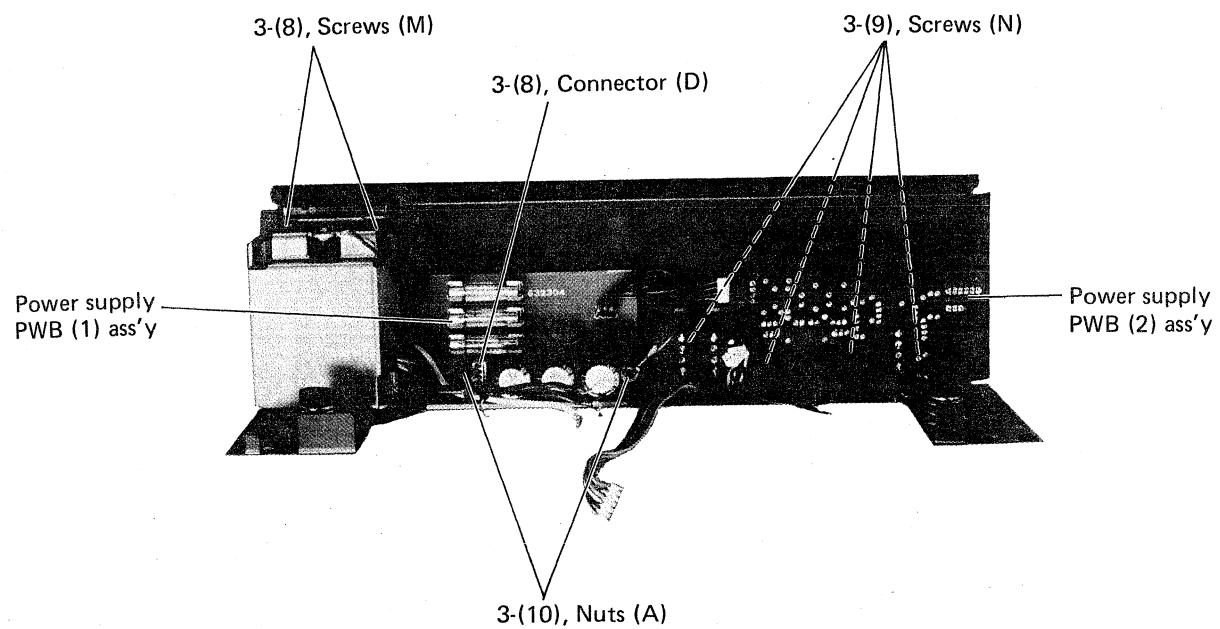
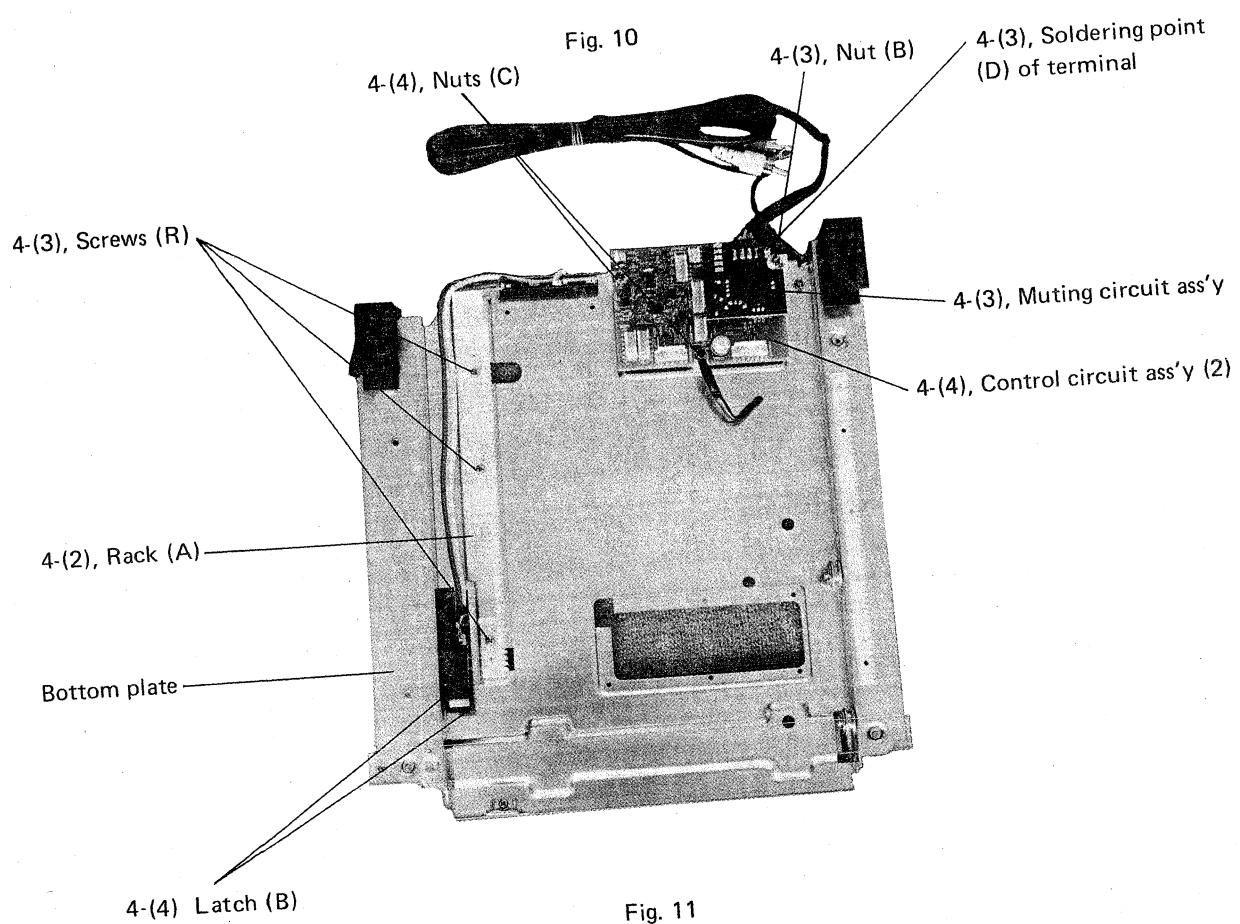
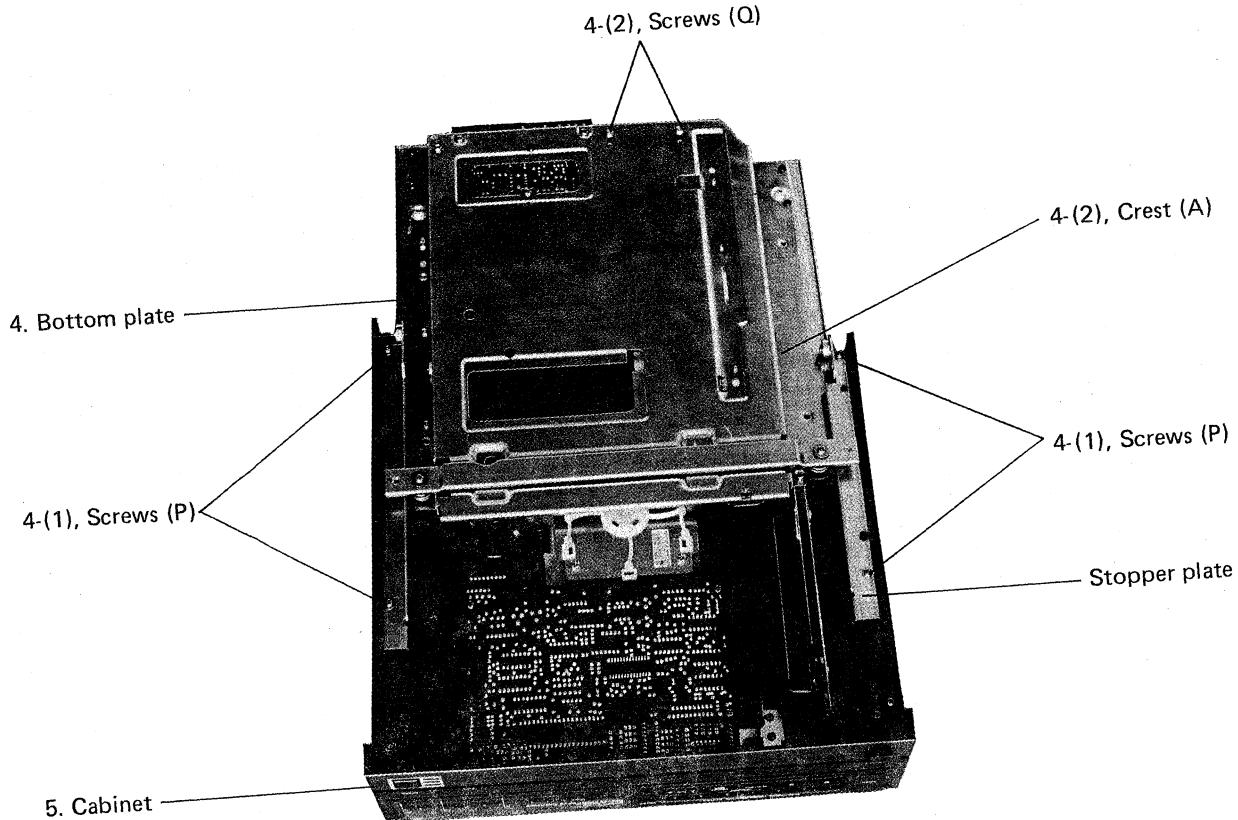


Fig. 9



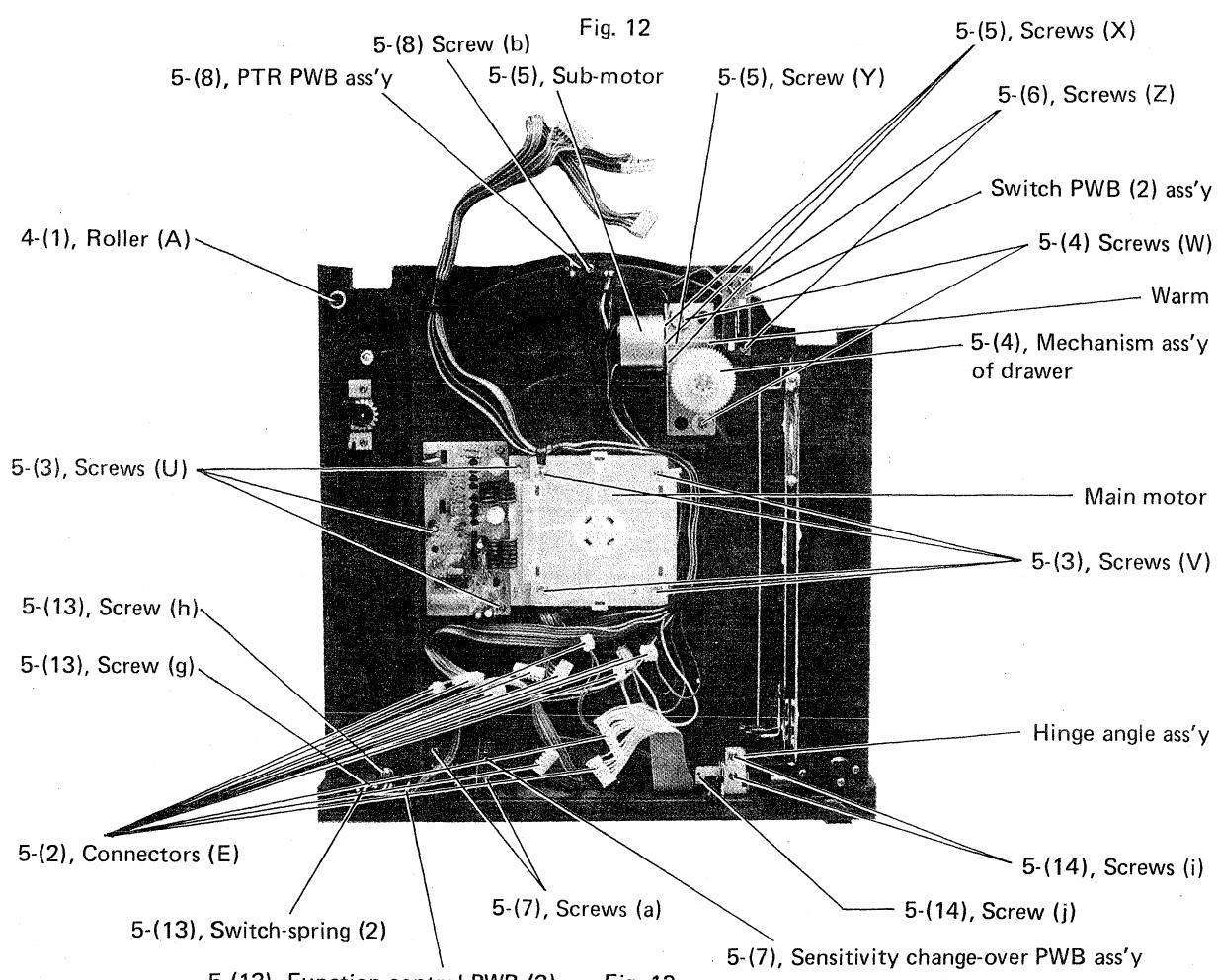
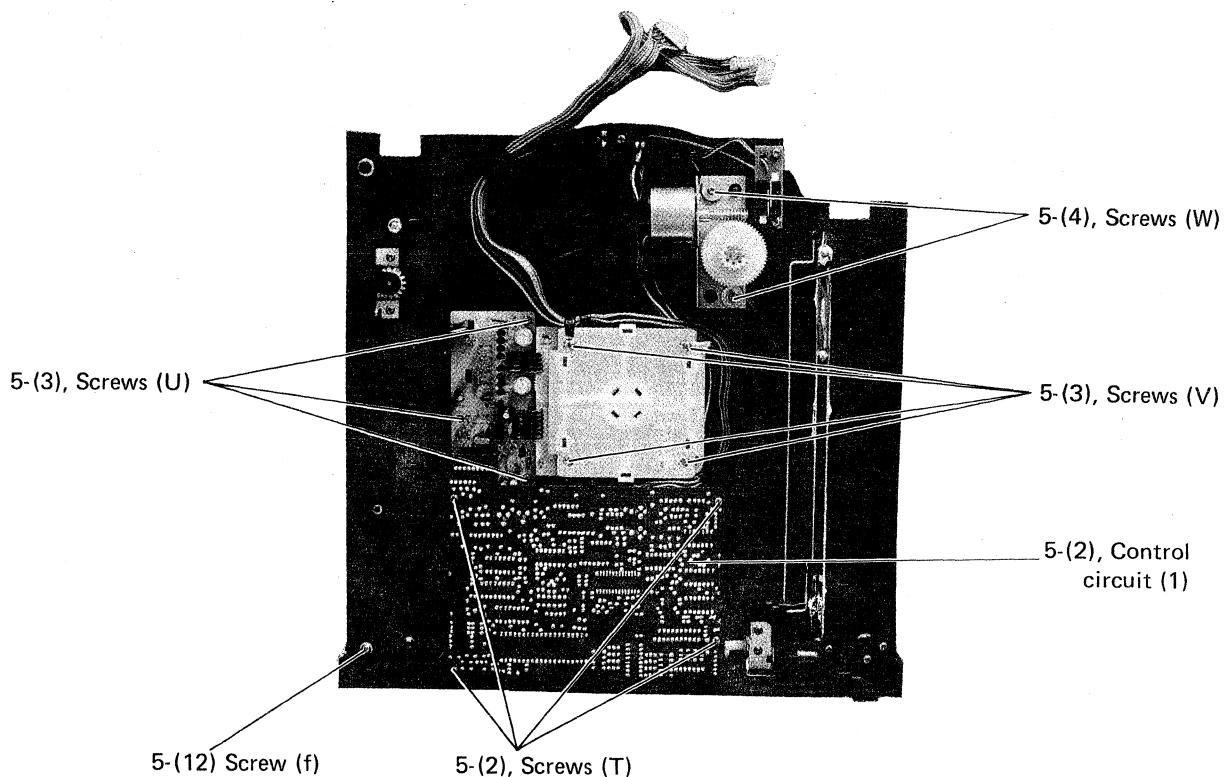


Fig. 13

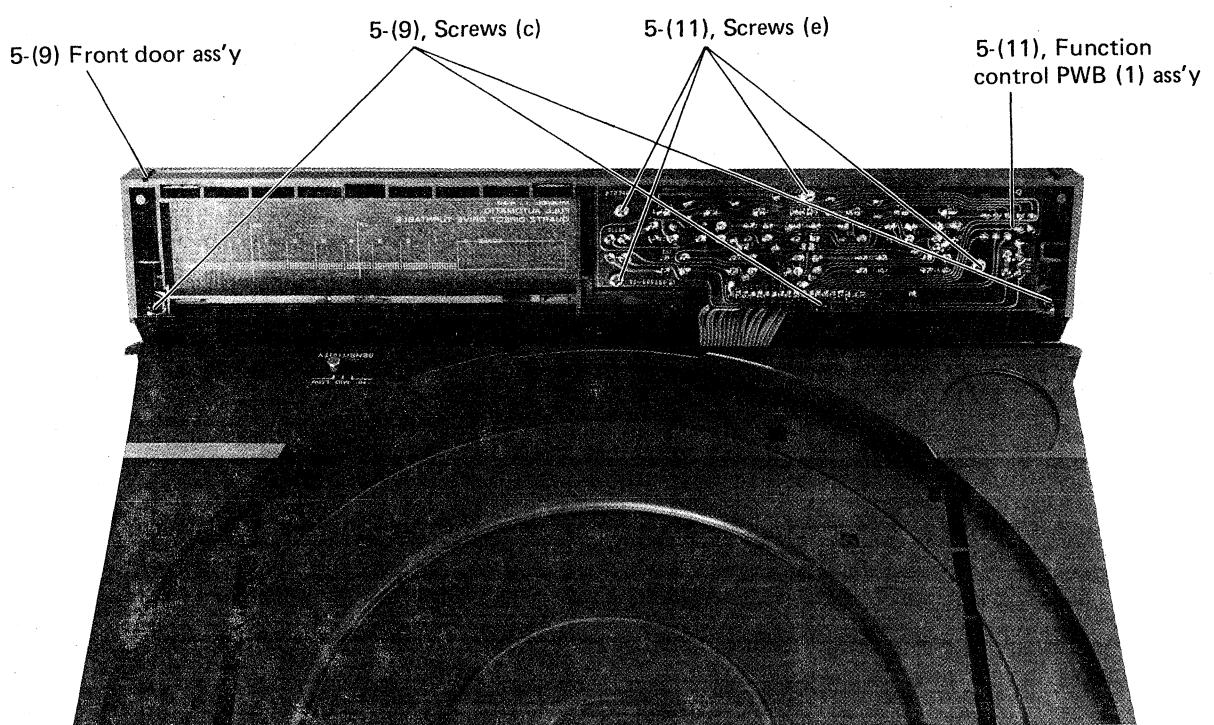


Fig. 14

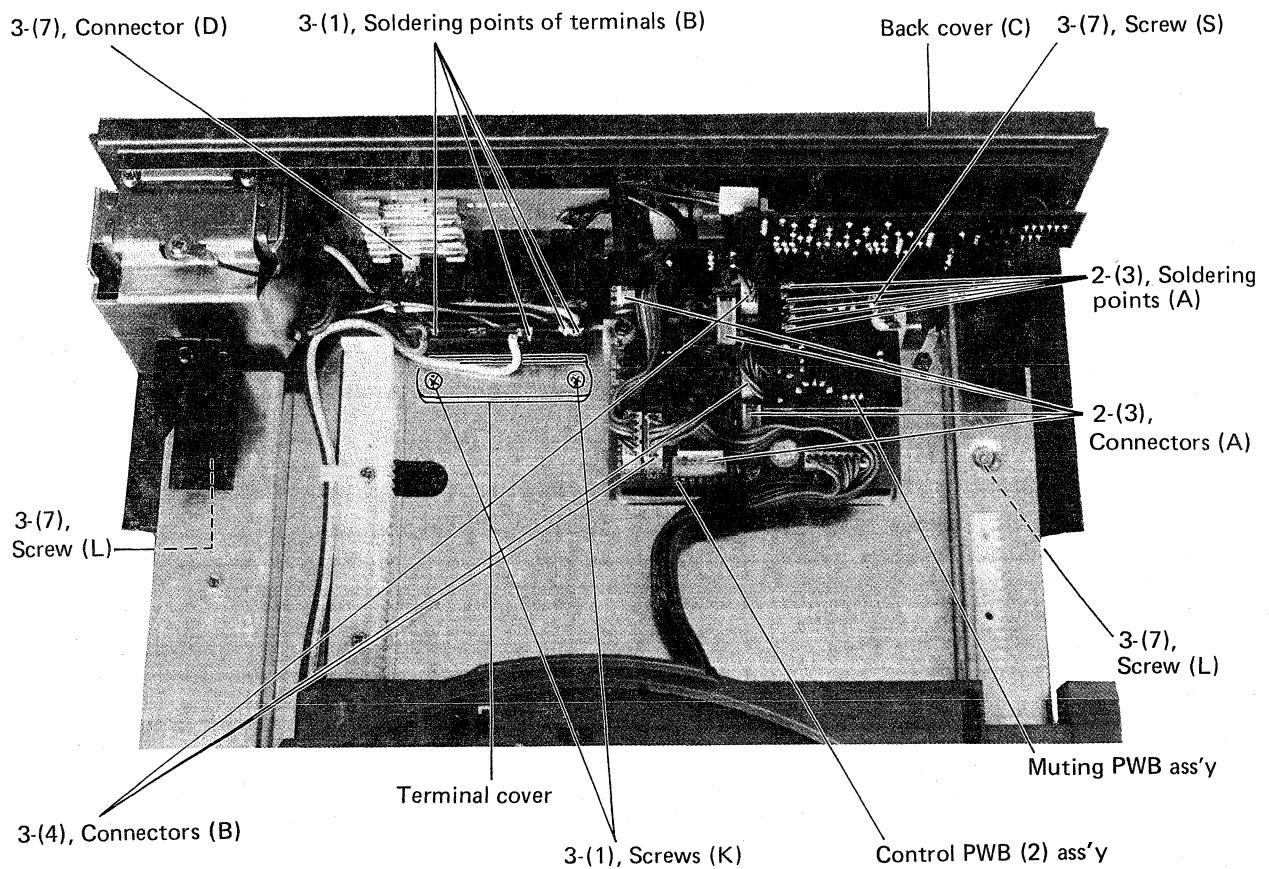


Fig. 15

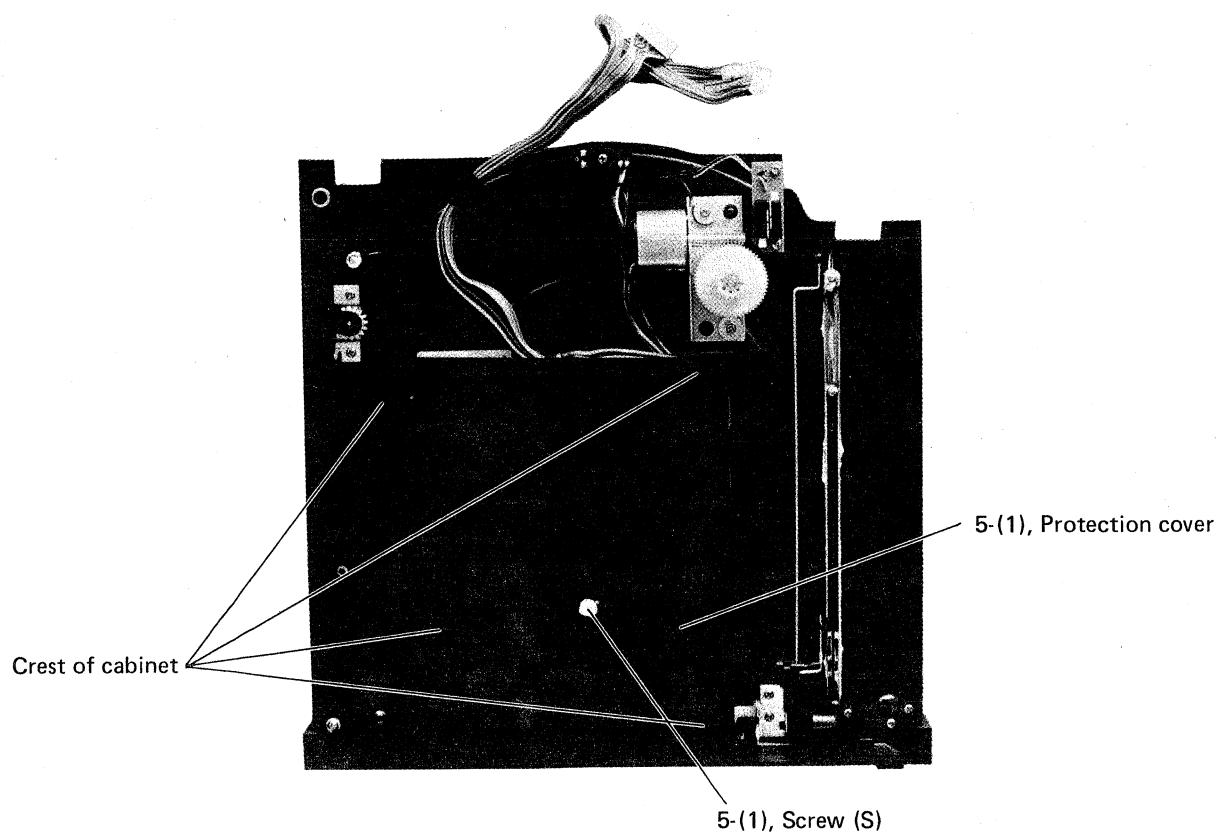


Fig. 16

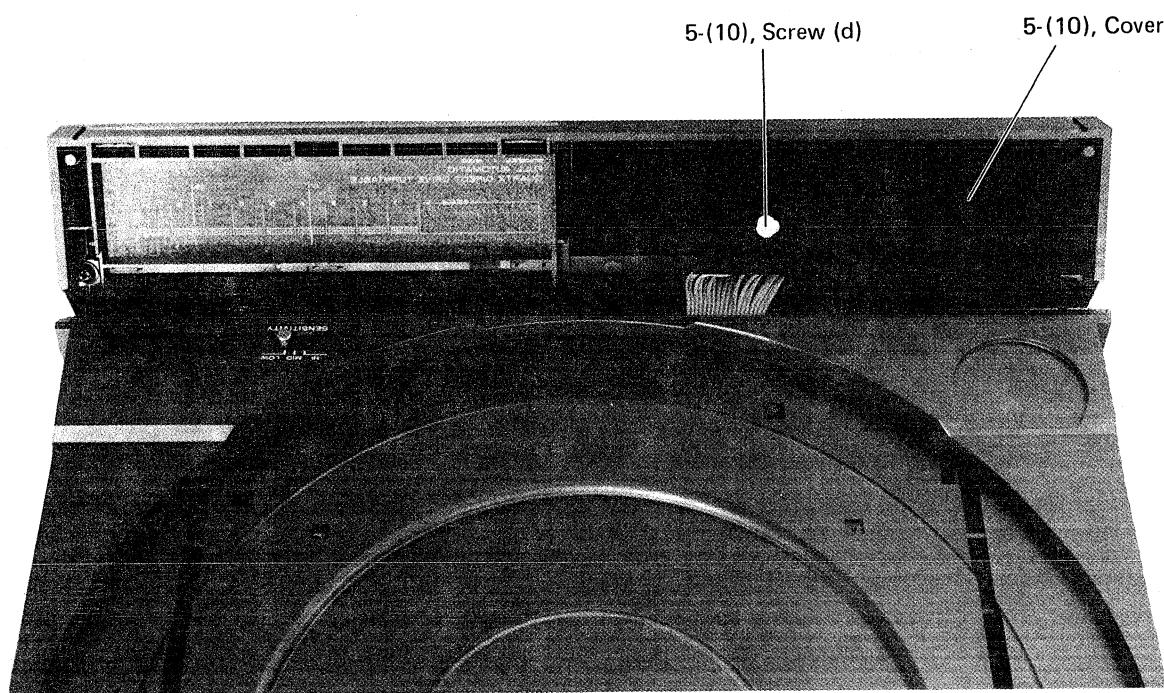


Fig. 17

## ADJUSTMENT

### 1. Adjustment of Tracking Sensor

(1) Set digital volt meter to DC, 20V range, and connect its  $\oplus$  terminal to J205 and  $\ominus$  terminal to J206. (See Fig. 18)

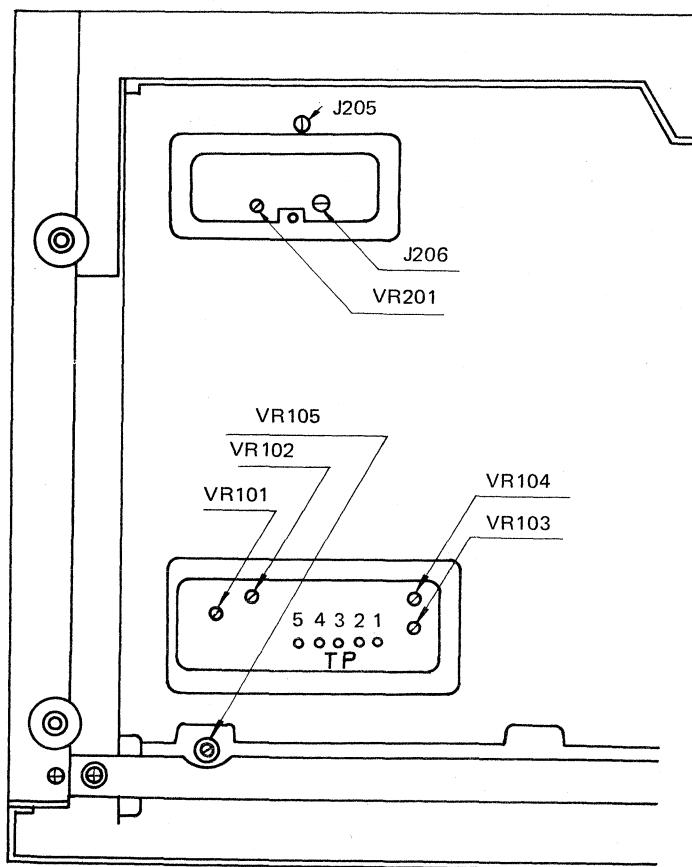


Figure 18  
Viewed from bottom

(2) Adjust VR 201 so that voltage reads 9.0 to 9.5V when tonearm is swung to left side by hand (See Fig. 19), and then adjust eccentric pin (B) so that voltage reads  $-0.5$  to  $+0.5$ V when tonearm locates at the center (See Fig. 19, 20).

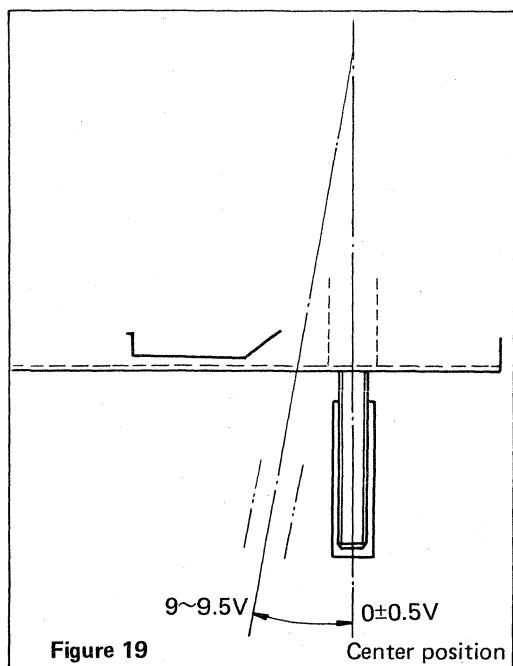


Figure 19

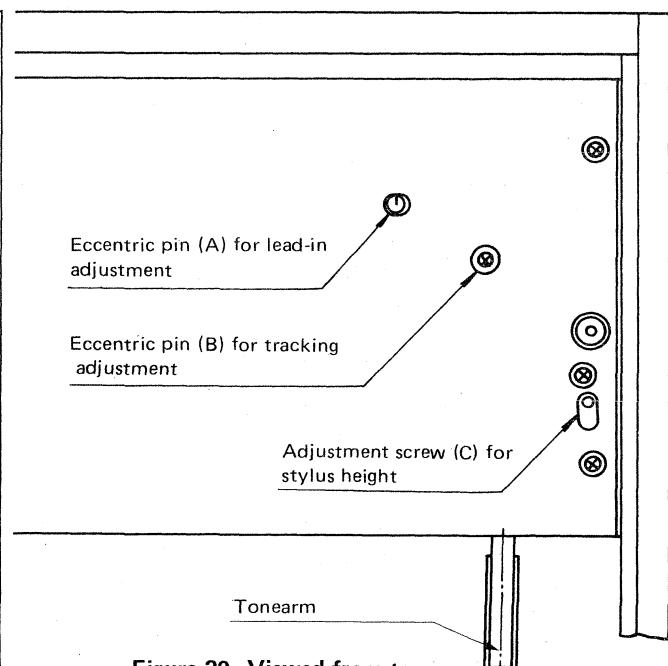


Figure 20 Viewed from top

## 2. Adjustment of Stylus Height

- (1) Set turntable ready to play with a record disc and tonearm at rest position, and then switch off the power.
- (2) Adjust height of stylus within 4-6mm (normal 5mm) from surface of disc by turning adjustment screw (C). (See Fig. 20)

### Note

- (1) The adjustment of the screw is to be made with the tonearm at rest position.
- (2) The adjustment is to be made before adjustment of random programing.
- (3) The height becomes lower when adjustment screw (C) is turned clockwise direction.

## 3. Adjustment of Lead-in and Lead-off Position

- (1) Use special test record disc of NEC-1008 which having diameter of 17 cm (EP).
- (2) Adjust eccentric pin (A)(Fig. 20) so that lead-in count becomes 20 to 28 counts. (85.1-84.33 mm radius from the center)
- (3) 30 cm (LP) lead-in position is fixed by the adjustment for 17 cm (EP) automatically.

### Note

- (1) The adjustment of the pin is to be made with tonearm at the rest position.
- (2) Lead-in position moves gradually inward by rotating the eccentric pin (A) in a clockwise direction.

## 4. Adjustment of Random Programing (See Fig. 18.)

- (1) Adjustment of sensor 1 to detect unmodulated groove between each program at tonearm up-mode. (See Fig. 21)  
In play mode, locates stylus tip above the unmodulated groove or lead-out groove.  
Connect  $\ominus$  of digital volt meter to TP1 and  $\oplus$  to TP2. Adjust VR103 so that voltage reads about 2.5V, and then adjust VR101 so that random programing is performed correctly. VR101 is provided for fine adjustment.
- (2) Adjustment of sensor 2 to detect unmodulated groove for lead-out. (See Fig. 22)  
In play mode, locates stylus tip onto the unmodulated groove for lead-out.  
Connect  $\ominus$  of digital volt meter to TP1 and  $\oplus$  to TP3. Adjust VR104 so that voltage reads about 3.0V, and then adjust VR102 so that lead-out motion is performed correctly.

### Note

Sensitivity of the sensors are adjusted proportionally by the reads of the above adjustment.

5. Adjustment of sensor to detect designated and unmodulated groove to start play in program mode. (See Fig. 18.)  
Adjust VR105 so that stylus descends correctly onto designated and unmodulated groove in programing mode.

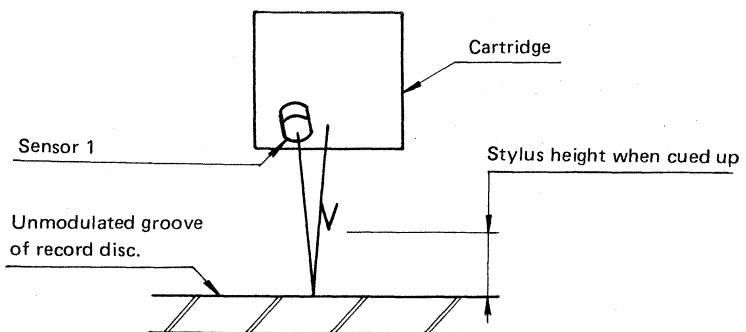


Figure 21 Viewed from cartridge front

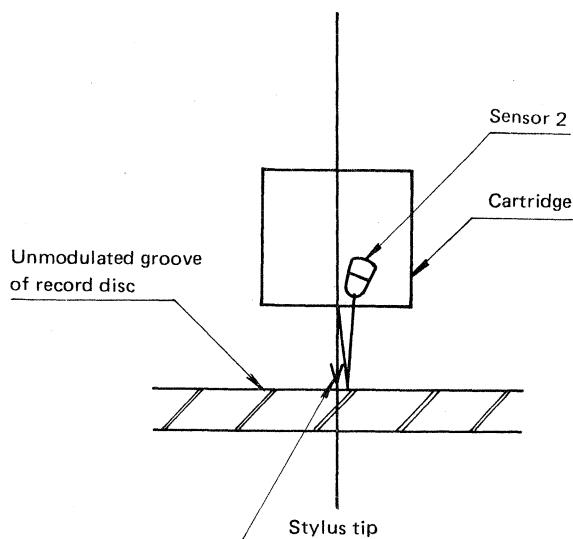
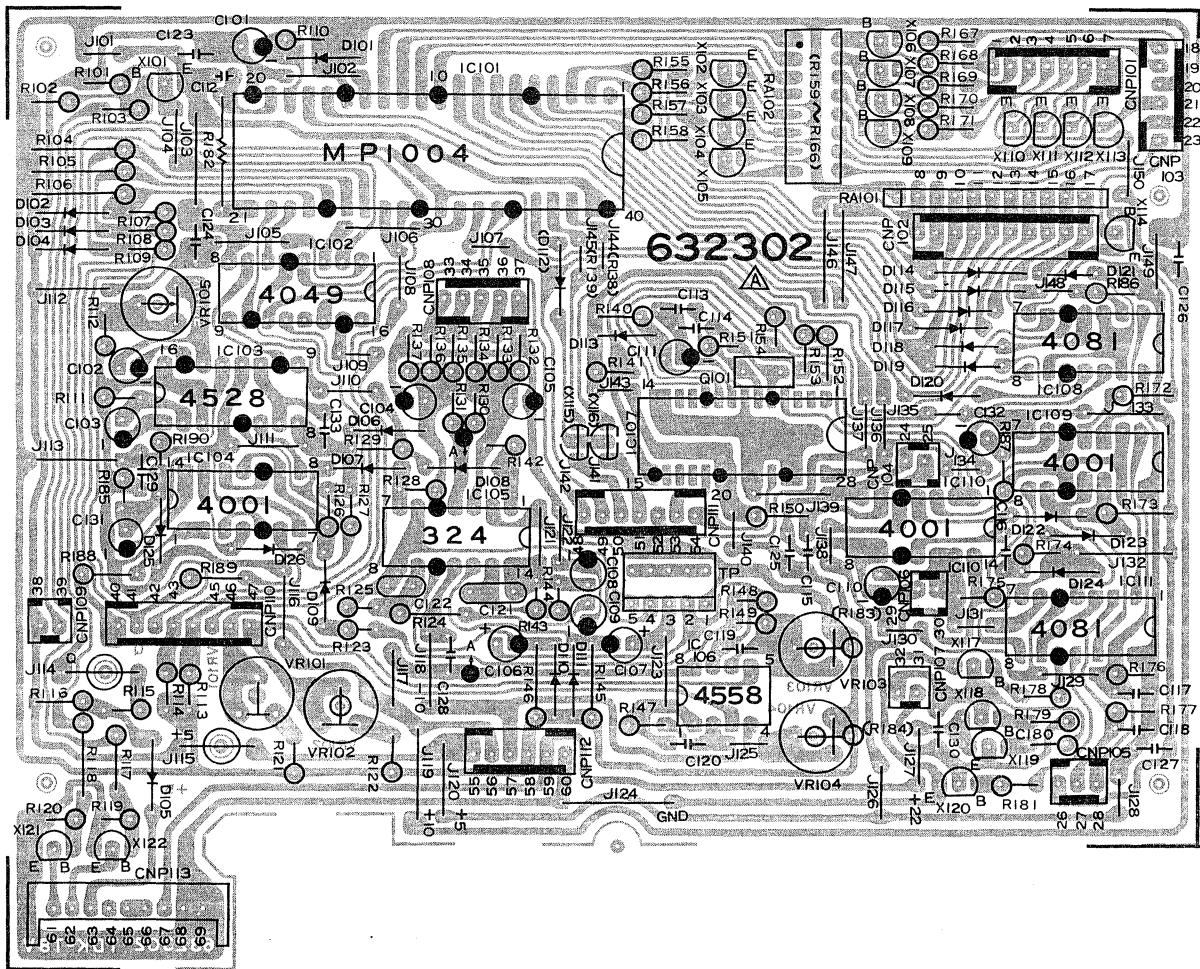
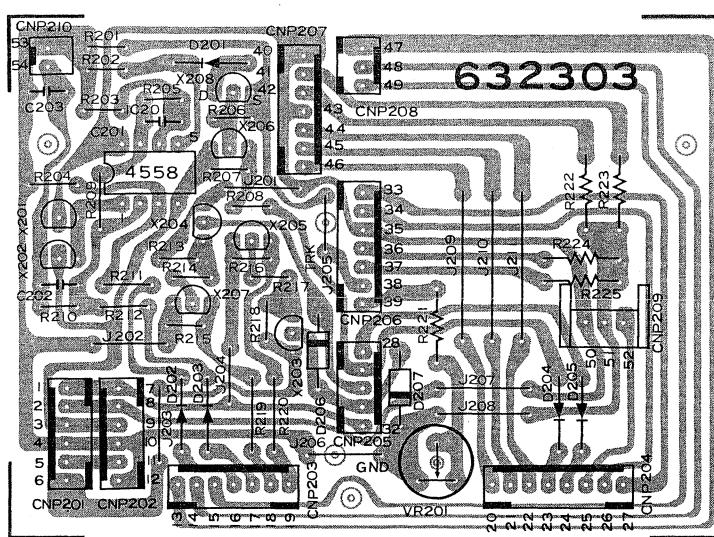


Figure 22 Viewed from cartridge front

### MAIN CONTROL P.W.B. (1)

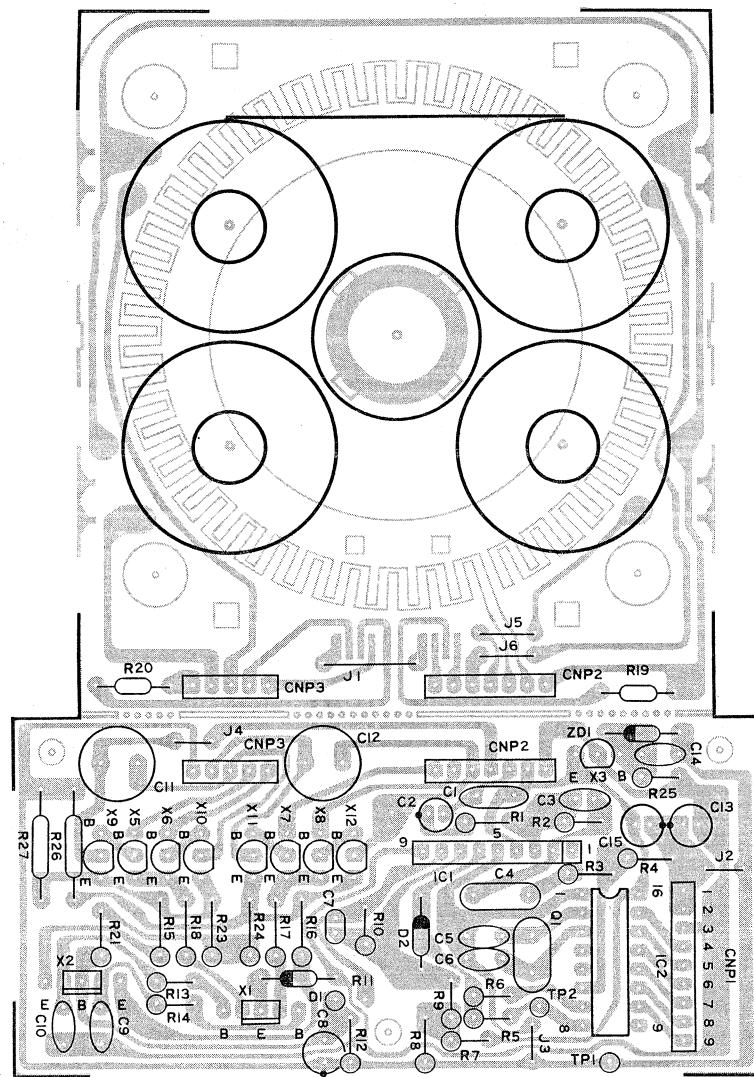


### MAIN CONTROL P.W.B. (2)

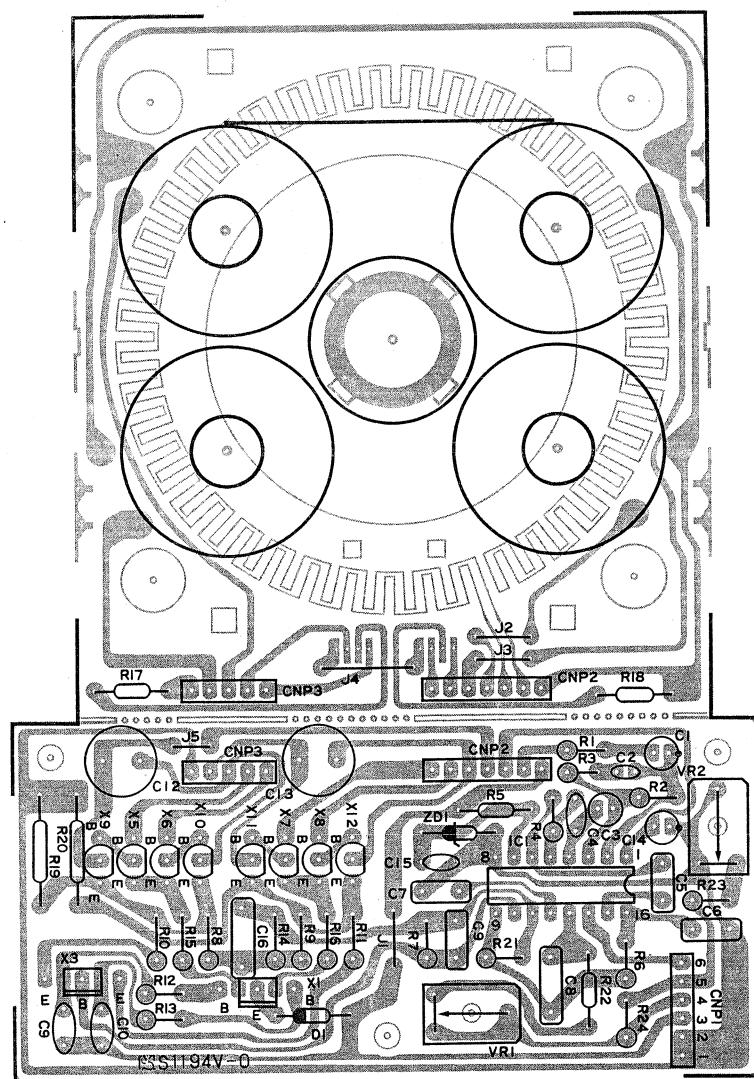


## CORRECTION SHEET

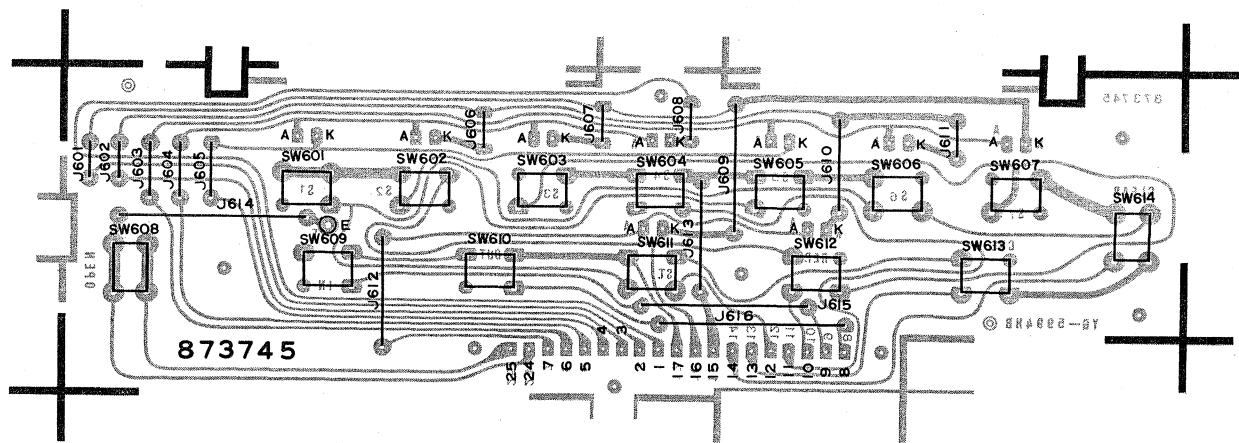
### MOTOR CONTROL P.W.B.



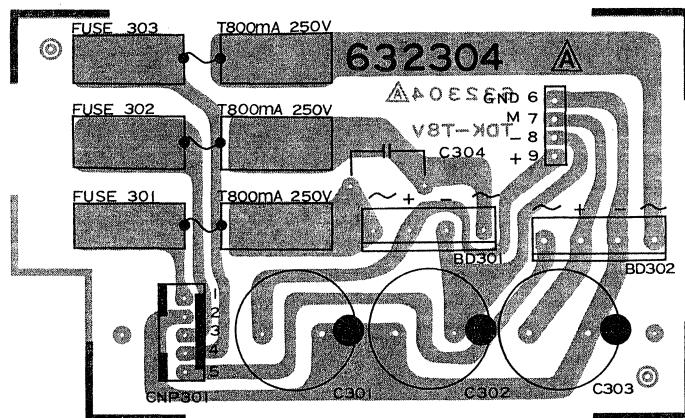
## MOTOR CONTROL P.W.B.



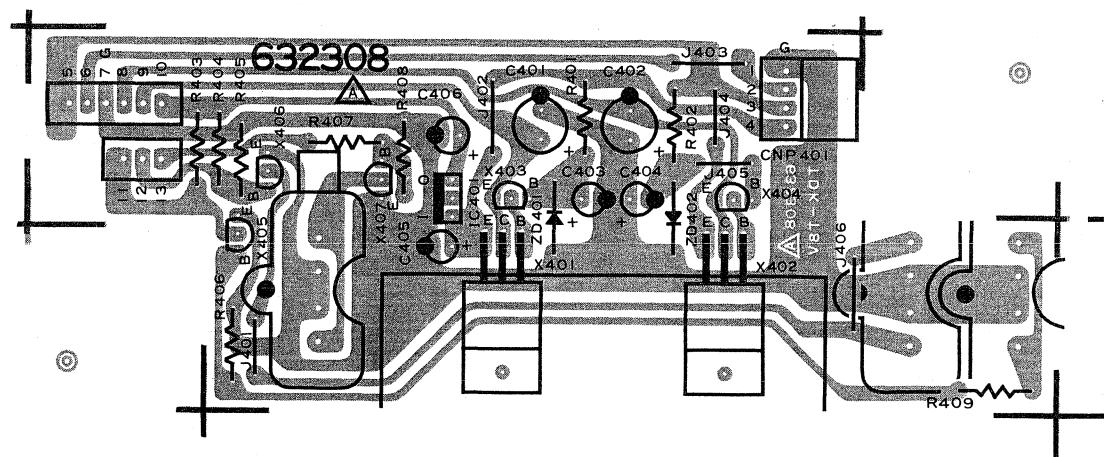
## TOUCH CONTROL P.W.B.



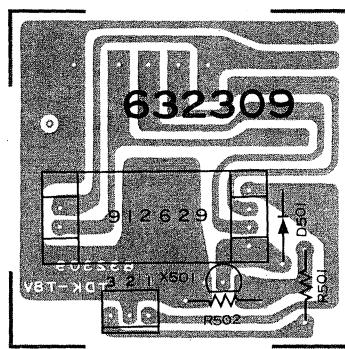
## POWER SUPPLY P.W.B. (1)



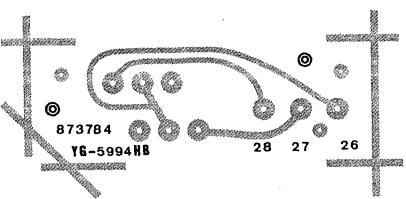
## POWER SUPPLY P.W.B. (2)



**MUTING P.W.B.**



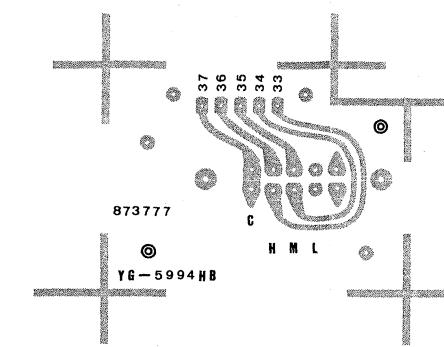
**DRAWER SWITCH P.W.B.**



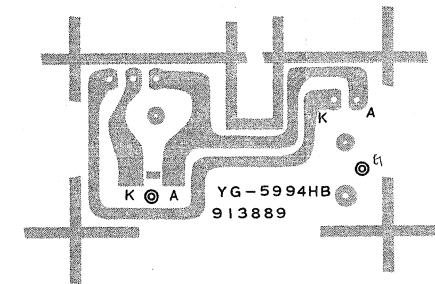
**RECORD EXISTENCE  
DETECTION P.W.B.**



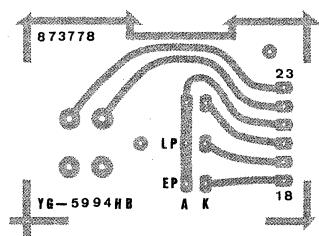
**SENSITIVITY CHANGE-OVER P.W.B.**



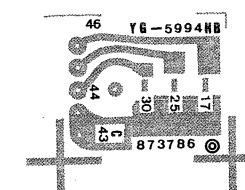
**LED P.W.B. FOR LP SENSOR AND POSITION SENSOR**



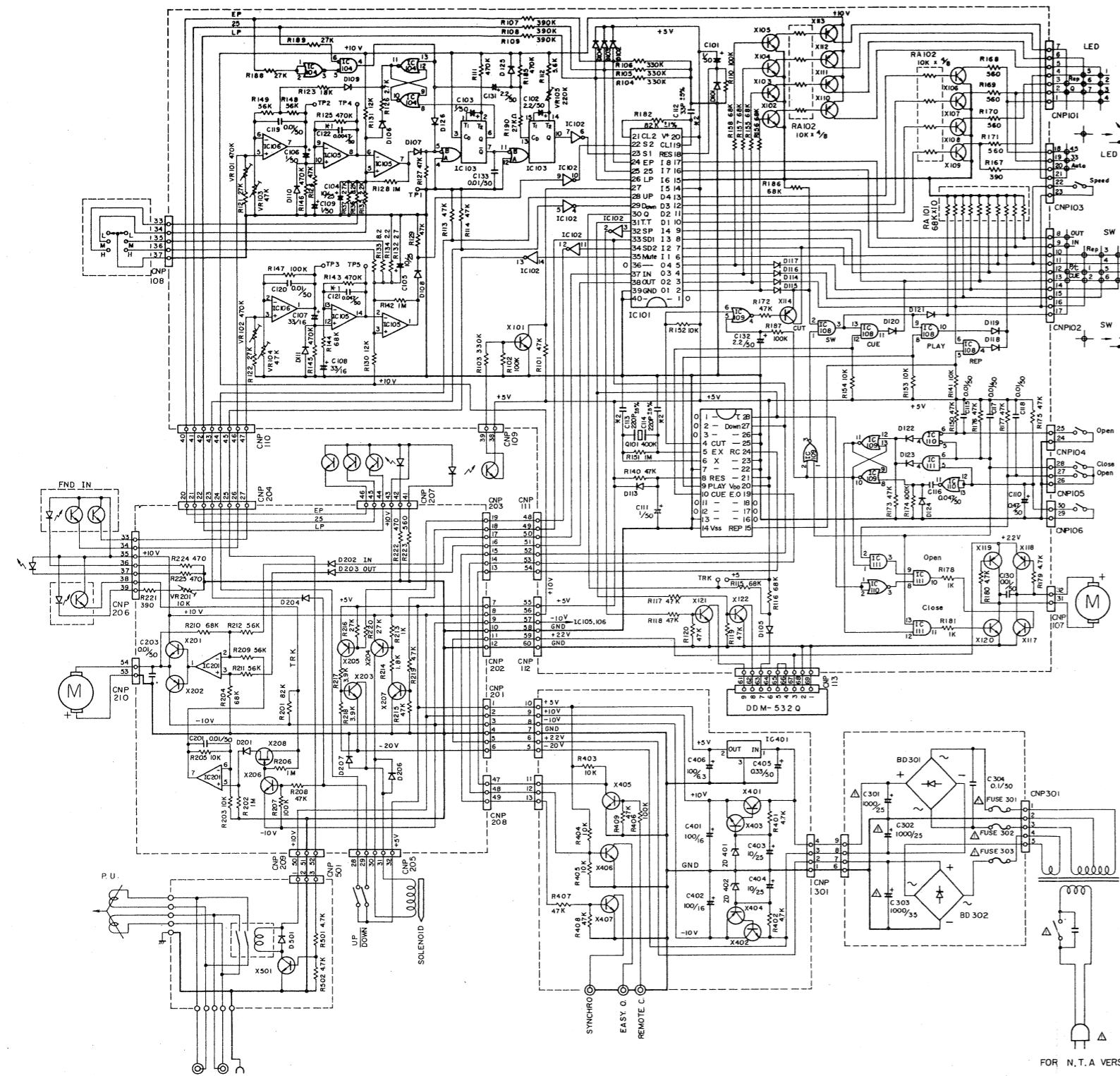
**SPEED INDICATOR P.W.B.**



**POSITION SENSOR P.W.B.**



## SCHEMATIC DIAGRAM



## LIST OF VOLTAGES FOR EACH PIN OF IC AND TRANSISTOR

The voltages are measured under following conditions

Tonearm at rest position without record disc on with stylus cover mounted Indicator is to be set at AUTO.,Sensitivity switch at M.,No signal is applied to the logic control circuit (Open).

Voltages are measured between ground and each terminal pin with digital volt meter.

Refer "\*" marked voltages to wave form list

## List of Voltages

IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.	VOLTAGE [V]
IC101	1	+5 (not used)	2	0	29	0	3	0	16	NC	11	0	X101	E	0	C	*22
	2	*1			30	+6.5	4	1	12	+6	12	+6		C	+0.2 *15	B	*23
	3	*1			31	0	5	1	13	+5	13	+5		B	+0.7 *16		
	4	*1			32	0	6	1	14	+5 (V <sub>DD</sub> )	14	+5 (V <sub>DD</sub> )	X102	E	0	X110	E +10
	5	*1			33	0	7	3	10	1	15	0		C	*17	C	*24
	6	0			34	0	8	0	16	0	16	0	X103	E	0	B	*10
	7	*1			35	0	9	5	17	+9.5	17	+9.5		C	*18	X111	E +10
	8	0			36	0 (not used)	10	6	18	0	18	0		B	*18	C	*26
	9	0			37	0	11	7	19	+10	19	+10				B	+10
	10	*1			38	0	12	8	20	0 (V <sub>SS</sub> )	20	0 (V <sub>SS</sub> )	X105	E	0	X113	E +10
	11	0			39	0 (V <sub>SS</sub> )	13	9	21	+10 (not used)	21	+10 (not used)		C	*17	C	*27
	12	0			40	0	14	10	22	0	22	0	X106	E	0	X114	E +28
	13	0					15	11	23	+10	23	+10		C	*18		
	14	+6	IC102	1	+5 (V <sub>DD</sub> )		16	12	24	0	24	0	X107	E	0	X115	E +10
	15	0		2	+6		17	13	25	+8.5 *6	25	+8.5 *6		C	*18		
	16	0		3	0		18	14	26	+9.7 *7	26	+9.7 *7	X108	E	0	X116	E +22
	17	0		4	0		19	15	27	0	27	0		C	*18		
	18	0 (Reset)		5	+4.5		20	16	28	+10 (V <sub>DD</sub> )	28	+10 (V <sub>DD</sub> )	X109	E	0	X117	E 0
	19	*2 (Clock)		6	+6		21	14	29	+10 *8	29	+10 *8		C	*18		
	20	+5 (V <sub>DD</sub> )		7	0	IC104	1	30	2	+10 *8	30	+10 *8	X110	E	0	X118	E +22
	21	*3 (Clock)		8	0 (V <sub>SS</sub> )		31	3	31	0	31	0		C	*18		
	22	0		9	+8.4		32	4	32	+10	32	+10	X119	E	0	X120	E +20
	23	*6		10	0		33	5	33	5	33	5		C	*18		
	24	+4.4 *4		11	0		34	6	34	+10	34	+10		B	0		
	25	+0.7 *4		12	+5		35	7	35	+14 *9	35	+14 *9	X121	E	0	X122	E +20
	26	+0.6 *4		13	not used		36	8	36	0 (V <sub>SS</sub> )	36	0 (V <sub>SS</sub> )		C	*18		
	27	+0 *5		14	0		37	9	37	0	37	0	X123	E	0	X124	E +22
	28	+6		15	+4.8		38	9	38	0	38	0	X125	E	0	X126	E +22
							39	10	39	+10	39	+10	X127	E	0	X128	E +22
							40	11	40	+10	40	+10	X129	E	0	X130	E +22
							41	12	41	+20	41	+20	X131	E	0	X132	E +22
							42	13	42	+21	42	+21	X133	E	0	X134	E +22
							43	14	43	+10 (V <sub>DD</sub> )	43	+10 (V <sub>DD</sub> )	X135	E	0	X136	E +22
							44	15	44	+5 (Reset)	44	+5 (Reset)	X137	E	0	X138	E +22
							45	16	45	0	45	0	X139	E	0	X140	E +22
							46	17	46	0	46	0	X141	E	0	X142	E +22
							47	18	47	0	47	0	X143	E	0	X144	E +22
							48	19	48	0	48	0	X145	E	0	X146	E +22
							49	20	49	0	49	0	X147	E	0	X148	E +22
							50	21	50	+5 (V <sub>DD</sub> )	50	+5 (V <sub>DD</sub> )	X149	E	0	X150	E +22
							51	22	51	0 (not used)	51	0 (not used)	X151	E	0	X152	E +22
							52	23	52	0 (not used)	52	0 (not used)	X153	E	0	X154	E +22
							53	24	53	+5	53	+5	X155	E	0	X156	E +22
							54	25	54	0 (not used)	54	0 (not used)	X157	E	0	X158	E +22
							55	26	55	0 (not used)	55	0 (not used)	X159	E	0	X160	E +22
							56	27	56	0	56	0	X161	E	0	X162	E +22
							57	28	57	0	57	0	X163	E	0	X164	E +22
							58	29	58	0	58	0	X165	E	0	X166	E +22
							59	30	59	0	59	0	X167	E	0	X168	E +22
							60	31	60	0	60	0	X169	E	0	X170	E +22
							61	32	61	0	61	0	X171	E	0	X172	E +22
							62	33	62	0	62	0	X173	E	0	X174	E +22
							63	34	63	0	63	0	X175	E	0	X176	E +22
							64	35	64	0	64	0	X177	E	0	X178	E +22
							65	36	65	0	65	0	X179	E	0	X180	E +22
							66	37	66	0	66	0	X181	E	0	X182	E +22
							67	38	67	0	67	0	X183	E	0	X184	E +22
							68	39	68	0	68	0	X185	E	0	X186	E +22
							69	40	69	0	69	0	X187	E	0	X188	E +22
							70	41	70	0	70	0	X189	E	0	X190	E +22
							71	42	71	0	71	0	X191	E	0	X192	E +22
							72	43	72	0	72	0	X193	E	0	X194	E +22
							73	44	73	0	73	0	X195	E	0	X196	E +22
							74	45	74	0	74	0	X197	E	0	X198	E +22
							75	46	75	0	75	0	X199	E	0	X200	E +22
							76	47	76	0	76	0	X201	E	0	X202	E +22
							77	48	77	0	77	0	X203	E	0	X204	E +22
							78	49	78	0	78	0	X205	E	0	X206	E +22
							79	50	79	0	79	0	X207	E	0	X208	E +22
							80	51	80	0	80	0	X209	E	0	X210	E +22
							81	52	81	0	81	0	X211	E	0	X212	E +22
							82	53	82	0	82	0	X213	E	0	X214	E +22
							83	54	83	0	83	0	X215	E	0	X216	E +22
							84	55	84	0	84	0	X217	E	0	X218	E +22
							85	56	85	0	85	0	X219	E	0	X220	E +22
							86	57	86	0	86	0	X221	E	0	X222	E +22
							87	58	87	0	87	0	X223	E	0	X224	E +22
							88	59	88	0	88	0	X225	E	0	X226	E +22
							89	60	89	0	89	0	X227	E	0	X228	E +22
							90	61	90	0	90	0	X229	E	0	X230	E +22
							91	62	91	0	91	0	X231	E	0	X232	E +22
							92	63	92	0	92	0	X233	E	0	X234	E +22
							93	64	93	0	93	0	X235	E	0	X236	E +22
							94	65	94	0	94	0	X237	E	0	X238	E +22
							95	66	95	0	95	0	X239	E	0	X240	E +22
							96	67	96	0	96	0	X241	E	0	X242	E +22
							97	68	97	0	97	0	X243	E	0	X244	E +22
							98	69	98	0	98	0	X245	E	0	X246	E +22
							99	70	99	0	99	0	X247	E	0	X248	E +22
							100	71	100	0	100	0	X249	E	0	X250	E +22
							101	72	101	0	101	0	X251	E	0	X252	E +22
							102	73	102	0	102	0	X253	E	0	X254	E +22
							103	74	103	0	103	0	X255	E	0	X256	E +22
							104	75	104	0	104	0	X257	E	0	X258	E +22
							105	76	105	0	105	0	X259	E	0	X260	E +22
							106	77	106	0	106	0	X261	E	0	X262	E +22
							107	78	107	0	107	0	X263	E	0	X264	E +22
							108	79	108	0	108	0	X265	E	0	X266	E +22
							109	80	109	0	109	0	X267	E	0	X268	E +22
							110	81	110	0	110	0	X269	E	0	X270	E +22
							111	82	111	0	111	0	X271	E	0	X272	E +22
							112	83	112	0	112	0	X273	E	0	X274	E +22
							113	84	113	0	113	0	X275	E	0	X276	E +22
							114	85	114	0	114	0	X277	E	0	X278	E +22
							115	86	115	0	115	0	X279	E	0	X280	E +22
							116	87	116	0	116	0	X281	E	0	X282	E +22
							117	88	117	0	117	0	X283	E			

### Note on safety:

Symbol  fire or electrical shock hazard.

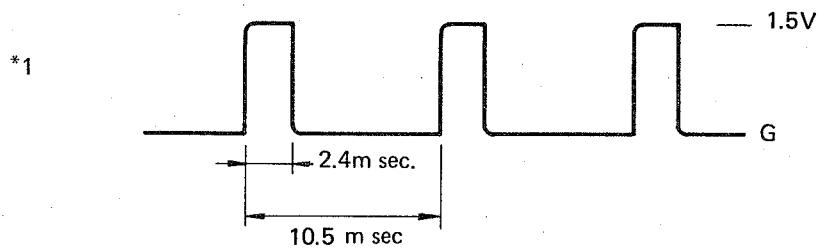
Only original parts should be used to replace any parts marked with symbol **!**

Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

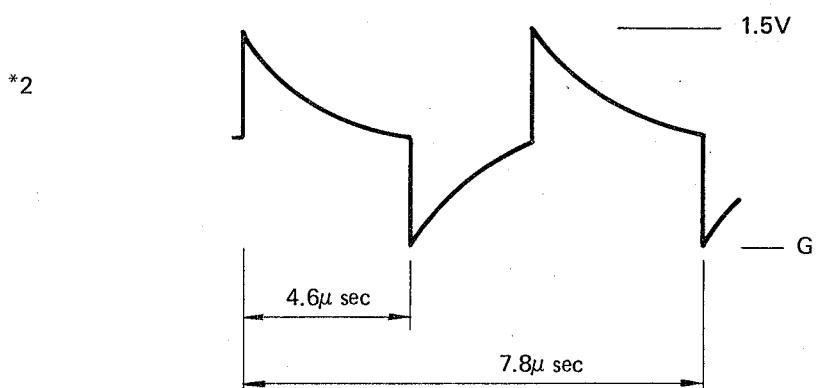
Components and wiring are subject to change for modification without notice.

## WAVE FORM LIST

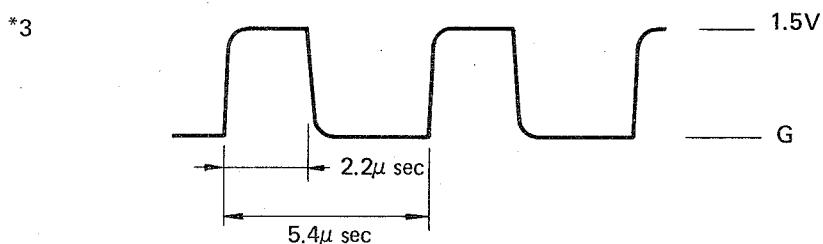
Refer "\*" marked Figure to voltage list on the schematic diagram.  
Wave form are measured by oscilloscope.



Wave form is same, but output timing is  
deviated by each terminal pin.



Frequency will be deviated by input impedance  
of measuring equipment.



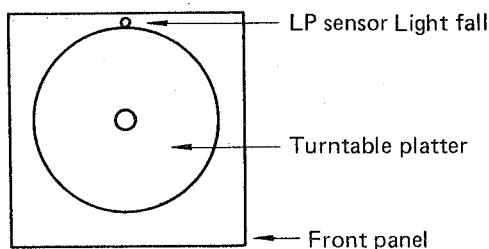
Frequency will be deviated by input impedance  
of measuring equipment.

\*4

Voltages become "L" or "H" by the location of tonearm.  
L represents: 0-2V. H represents: 3-5V.

PIN NO.	REST		LP-25	25-EP	EP-LP RETURN	LP RETURN-EP RETURN	EP RETURN-
24	H	H	L	L	H	H	L
25	L	L	L	H	H	H	H
26	L	H	H	H	H	L	L

\*5



\*6

Output voltage will be deviated by impedance of measuring equipment with below mentioned formula.

"R" represents input impedance of measuring equipment.

$$\text{Output voltage} = 10 \times \frac{R}{R + 470K\Omega} [\text{V}]$$

\*7

Output voltage will be deviated by input impedance of measuring equipment and VR105 with below mentioned formula.

"R" represents input impedance of measuring equipment.

$$\text{Output voltage} = 10 \times \frac{R}{R + \text{VR105 (220K}\Omega)} [\text{V}]$$

\*8

+8V or more

\*9

+2V or less

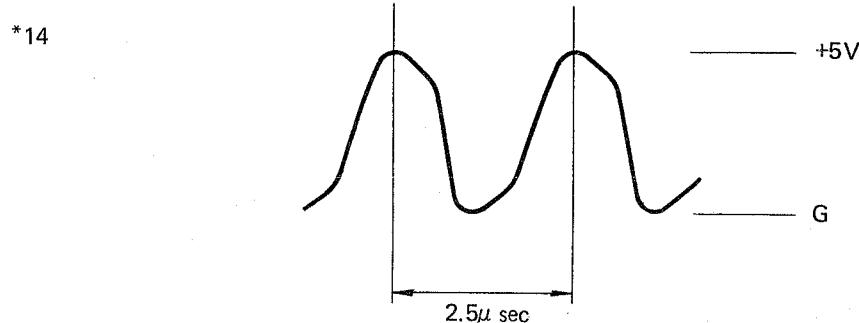
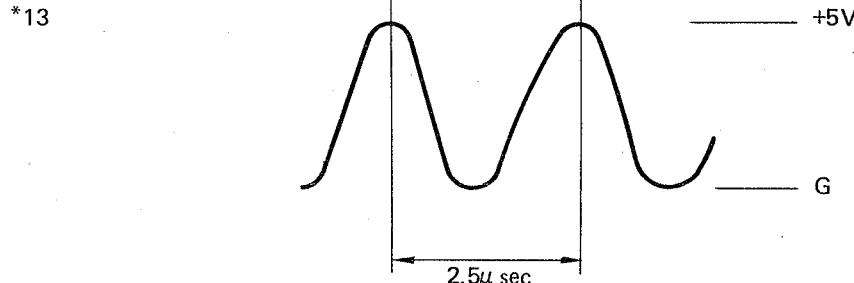
\*10 Voltage will be changed by setting of sensitivity switch.

3.4V for High  
5.0V for Middle  
7.0V for Low

\*11 Voltage will be changed by setting of sensitivity switch.

1.8V for High  
2.0V for Middle  
2.2V for Low

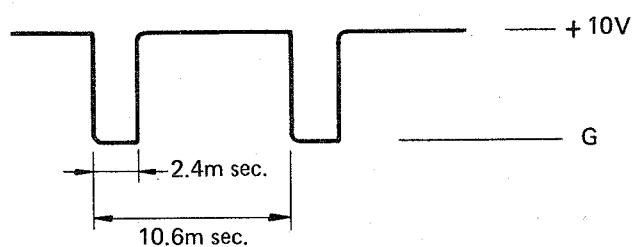
\*12 Output of sensor to detect unmodulated groove between each program.  
Voltage will be varied by brightness of ambient.



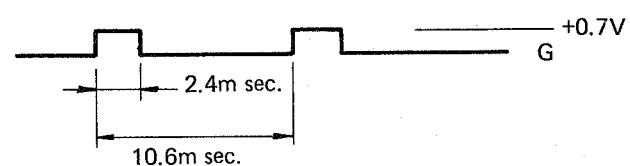
\*15 0V: with light falls on LP.  
+5V: without light falls on LP.

\*16 +0.7V: with light falls on LP sensor.  
0V: without light falls on LP sensor.

\*17

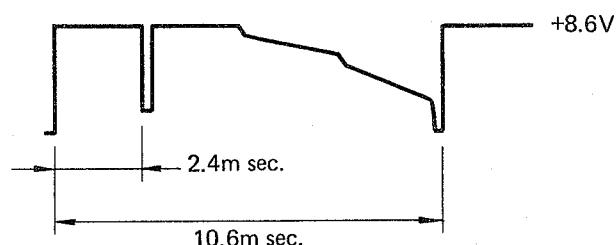


\*18



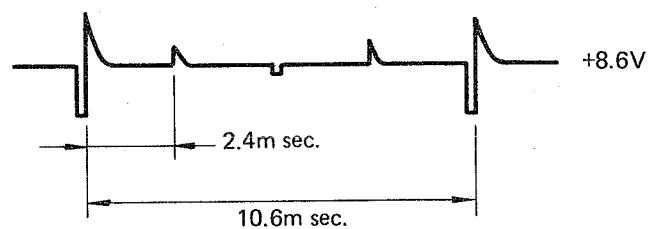
\*19

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



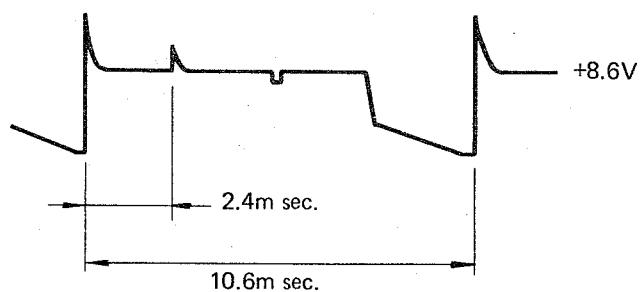
\*20

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



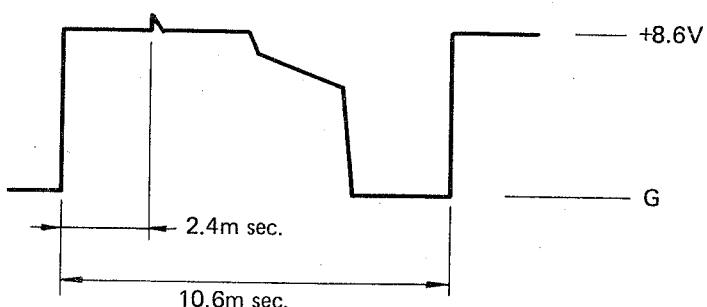
\*21

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

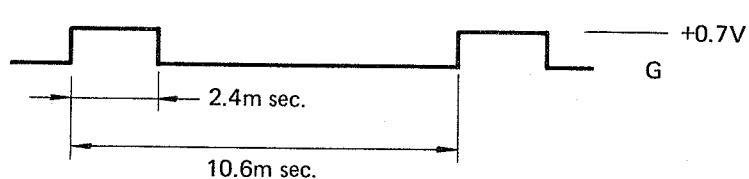


\*22

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

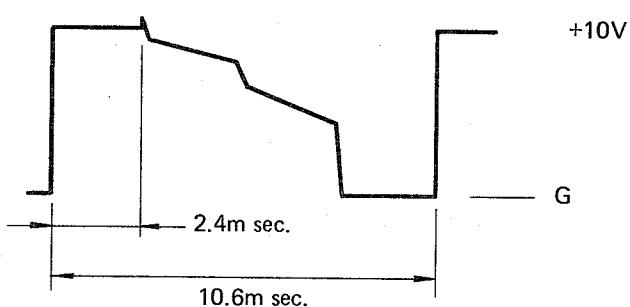


\*23



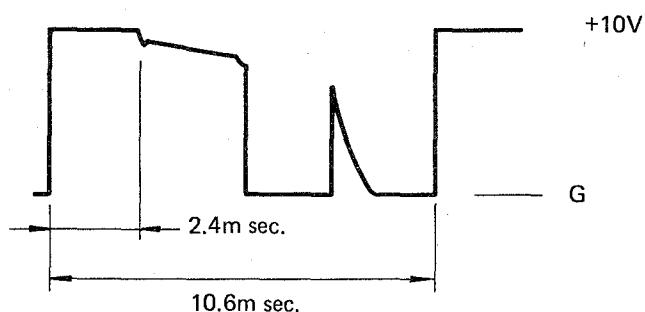
\*24

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



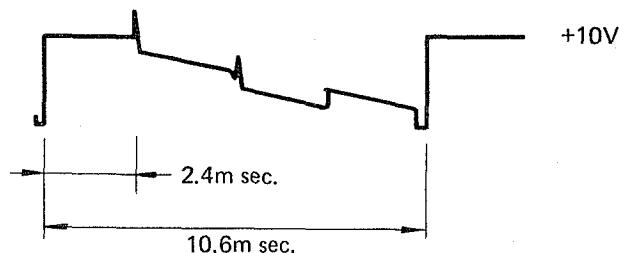
\*25

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



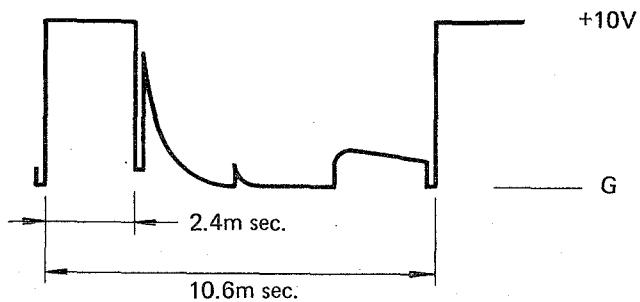
\*26

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

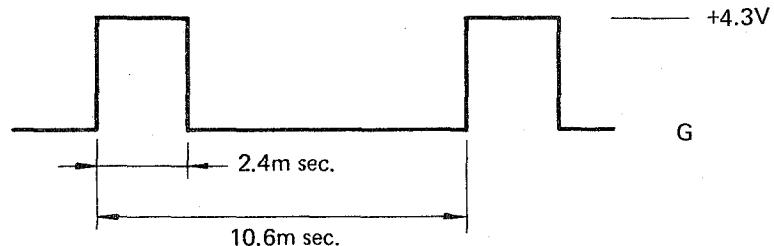


\*27

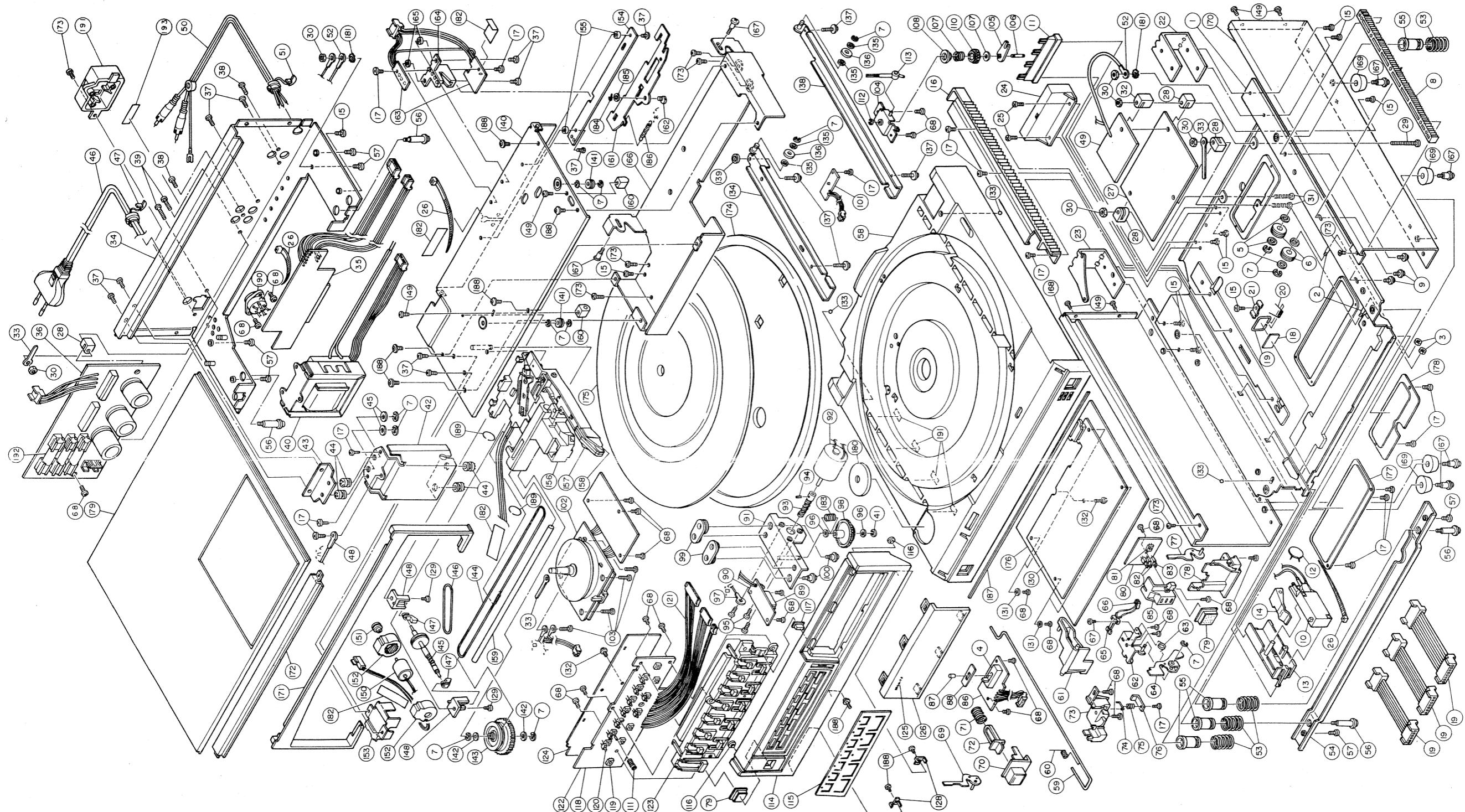
Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



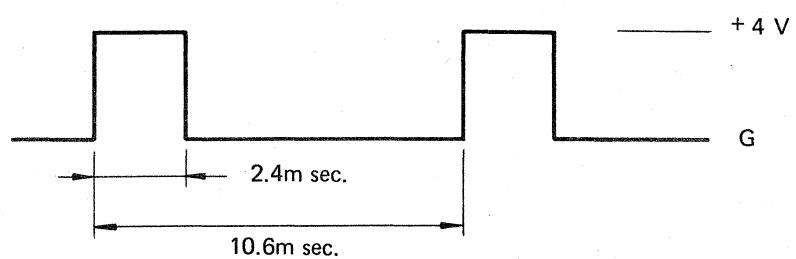
\*28



C-01-99] EXPLODED VIEW



\*29



\*30

$\pm 0.5V$  or less (Output level of tracking sensor)

## PARTS LIST

REF. DESIG.	PART NO.	QUANTITY						DESCRIPTION		
		U/C	N	E	A	T				
6	424Z135010	2	2	2	2	2	Roller			
34	424Z160020	1					Bracket, Rear Panel			
34	424Z160030	1					Bracket, Rear Panel			
34	424Z160040		1				Bracket, Rear Panel			
34	424Z160050		1	1	1	1	Bracket, Rear Panel			
47	424Z289010	1					Bush, Power Cord			
47	424Z289030		1	1	1	1	Bush, Power Cord			
51	424Z259020	1	1	1	1	1	Bush, Connective Cord			
58	424Z064020	1	1	1	1	1	Case, Cabinet			
70	424Z154050	1	1	1	1	1	Knob, Power			
79	424Z154060	2	2	2	2	2	Knob, Open Speed			
87	424Z154040	1	1	1	1	1	Knob, Sensitivity			
93	424Z058010	1	1	1	1	1	Gear, Worm			
98	424Z058020	1	1	1	1	1	Gear			
113	424Z071010	1	1	1	1	1	Cleaner			
114	424Z063020	1	1	1	1	1	Escutcheon, Front Panel			
115	424Z265010	1	1	1	1	1	Indicator, SW. Plate			
116	424Z056010	2	2	2	2	2	Buffer			
117	424Z154070	1	1	1	1	1	Knob, Clear			
125	424Z251010	1	1	1	1	1	Badge, marantz			
126	424Z158010	1	1	1	1	1	Window			
133	424Z106010	3	3	3	3	3	Sustainer, Steel Ball			
144	424Z006500	1	1	1	1	1	String Ass'y, Wire Rope			
146	424Z284010	1	1	1	1	1	Belt, Tone Arm Drive			
151	424Z262010	1	1	1	1	1	Pulley, Motor			
157	PC221003AR	1	1	1	1	1	Phono Cartridge			
158	PS221004AR	1	1	1	1	1	Stylus, CTS-433			
168	424Z053040	1	1	1	1	1	Cover, Left			
170	424Z053050	1	1	1	1	1	Cover, Right			
171	424Z401020	1	1	1	1	1	Frame, Front			
174	424Z165010	1	1	1	1	1	Turn Table			
175	424Z107010	1	1	1	1	1	Sheet			
179	424Z053060	1	1	1	1	1	Cover, Dust Cover			
180	424Z362010	1	1	1	1	1	Rec. Adaptor			
	424Z010010	8	8	8	8	8	Screw			

REF. DESIG.	PART NO.	QUANTITY					DESCRIPTION	
		U/C	N	E	A	T		
001U	424Z114010	4	4	4	4	4	Stopper	
	424Z265020	8	8	8	8	8	Indicator, Caution	
	424Z007010	1	1	1	1	1	Strip	
	424Z801530	1	1	1	1	1	Packing Case Ass'y	
	424Z801510	1	1	1	1	1	Packing Case Ass'y	
	424Z807010	2	2	2	2	2	Reinforcement	
	424Z809010	2	2	2	2	2	Cushion	
	424Z252010	1	1	1	1	1	Pad	
	424Z252020	1	1	1	1	1	Pad	
	424Z861020	1	1	1	1	1	Label, Earth Caution	
007U	421Z269030	1	1	1	1	1	Protector	
	ZD01000220	1	1	1	1	1	Connective Cord, Green	
	ZD010001AR	1	1	1	1	1	Connective Cord, Black	
	424Z851310	1	1	1	1	1	Instructions	
008U	SM010203AR	1	1	1	1	1	Micro Switch, Power	
	DK18103840	1	1	1	1	1	Ceramic 0.01 $\mu$ F 400V,	
	ZZ424Z0010	1	1	1	1	1	P.W.B. Ass'y, Control (2)	
	YF424Z0010	1	1	1	1	1	P.W. Board, Control (2)	
009U	HC10003090	1	1	1	1	1	IC, NJM4558D	
	HT406673A0	1	1	1	1	1	Transistor, 2SD6674-A-B, C, D	
	HT206473A0	1	1	1	1	1	Transistor, 2SB647A-B, C, D	
	HT320011K0	1	1	1	1	1	Transistor, 2SC2001-K	
	HT109521K0	1	1	1	1	1	Transistor, 2SA952-K	
	HT107332A0	1	1	1	1	1	Transistor, 2SA133-P, Q	
	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q	
	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q	
	HT200682A0	1	1	1	1	1	Transistor, 2SK68-K, L	
010U	D201	5	5	5	5	5	Diode, 1S1588	
	~		HD20020050					
	D205	5	5	5	5	5		
	D206	1	1	1	1	1	Diode, F14C	
	D207	1	1	1	1	1	Diode, F14C	
35	ZZ424Z0020	1	1	1	1	1	P.W.B. Ass'y, Power Supply (2)	

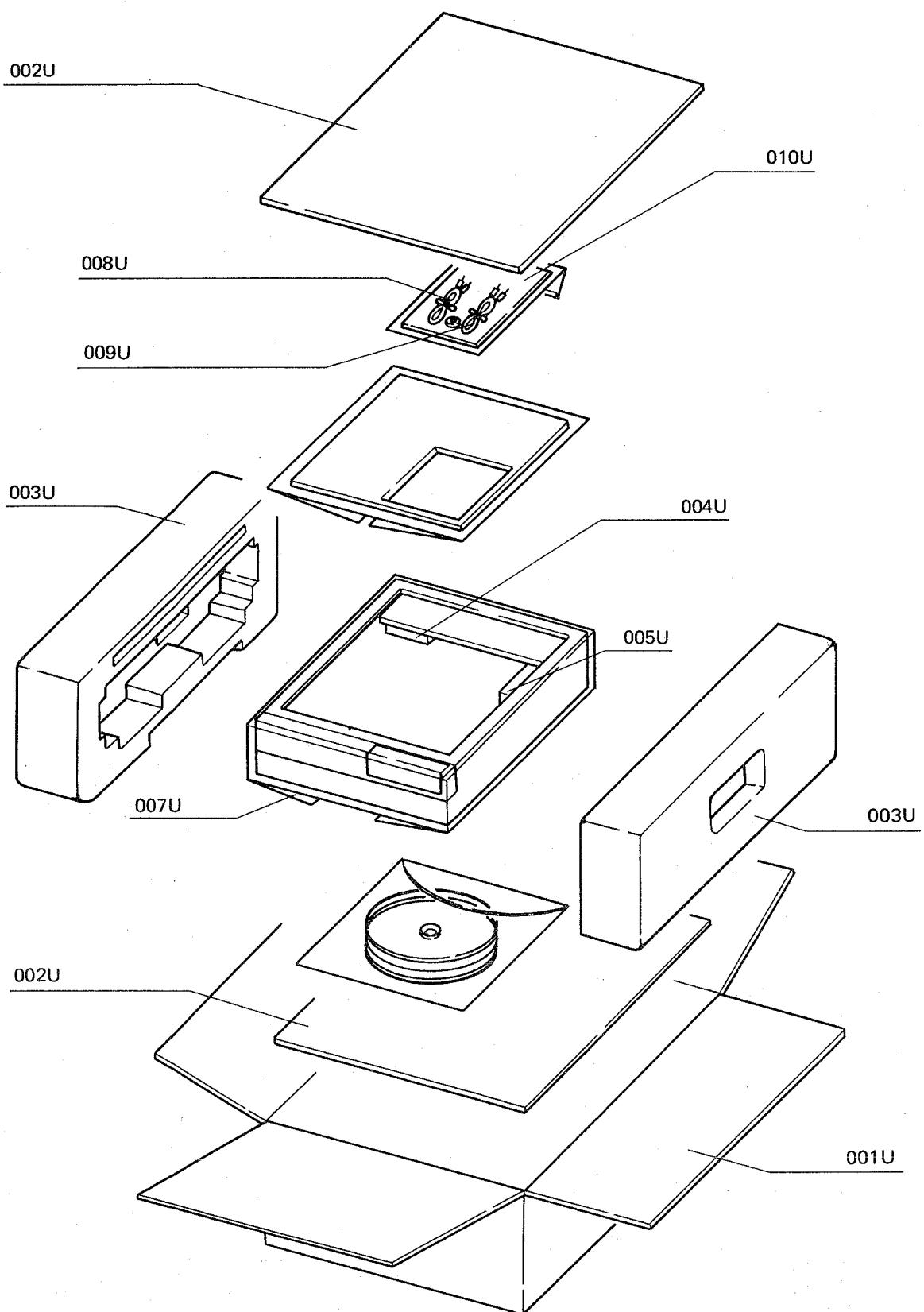
REF. DESIG.	PART NO.	DESCRIPTION						QUANTITY						DESCRIPTION					
		U/C	N	E	A	T		U/C	N	E	A	T		U/C	N	E	A	T	
IC401	YF424Z0020	1	1	1	1	1	P.W. Board, Power Supply (2)	49	ZZ424Z1040	1	1	1	1	P.W.B. Ass'y, Muting	1	1	1	1	1
X401	HC10031060	1	1	1	1	1	IC, $\mu$ PC78L05	49	ZZ424Z0040	1	1	1	1	P.W.B. Ass'y, Muting	1	1	1	1	1
X402	HT205362AR	1	1	1	1	1	Transistor, 2SB536-L, K	X501	YF424Z0040	1	1	1	1	P.W. Board, Muting	1	1	1	1	1
X403	HT403812AR	1	1	1	1	1	Transistor, 2SD381-L, K	D501	HT309452B0	1	1	1	1	2SC945-P, Q	1	1	1	1	1
X404	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q		HD20020050	1	1	1	1	Diode, 1S1588	1	1	1	1	1
X405	HT107332A0	1	1	1	1	1	Transistor, 2SA733-P, Q		LY1212001AR	1	1	1	1	Relay, 12V	1	1	1	1	1
X406	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q	50	YB015004AR	1	1	1	1	Connective Cord, Output	1	1	1	1	1
X407	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q	50	YB015003AR	1	1	1	1	Connective Cord, Output	1	1	1	1	1
ZD401	HD300005AR	1	1	1	1	1	Zener diode, RD11E (B2)	65	SM010110AR	1	1	1	1	Mini Switch	1	1	1	1	1
ZD402	HD300005AR	1	1	1	1	1	Zener, RD11E (B2)	84	ZZ424Z0050	1	1	1	1	P.W.B. Ass'y, Speed Indicator	1	1	1	1	1
36	ZZ424Z1030	1	1	1	1	1	P.W.B. Ass'y, Power Supply (1)	80	YF424Z0050	1	1	1	1	P.W. Board, Speed Indicator	1	1	1	1	1
36	ZZ424Z2030	1	1	1	1	1	P.W.B. Ass'y, Power Supply (1)	81	SP010101AR	1	1	1	1	Push Switch	1	1	1	1	1
36	ZZ424Z3030	1	1	1	1	1	P.W.B. Ass'y, Power Supply (1)	82	HI10004080	2	2	2	2	L.E.D. SEL1124R	2	2	2	2	2
YF424Z0030	1	1	1	1	1	P.W. Board, Power Supply (1)	83	HI10005080	1	1	1	1	L.E.D. SEL1324G	1	1	1	1	1	
D301	HD20026080	1	1	1	1	1	Diode, RB-151	86	ZZ424Z0060	1	1	1	1	P.W.B. Ass'y, Sensitivity	1	1	1	1	1
D301	HD20026080	1	1	1	1	1	Diode, RB-151	4	SS020301AR	1	1	1	1	Slide Switch	1	1	1	1	1
△ C301	EA1080251R	1	1	1	1	1	Electrolytic Capacitor, 1,000 $\mu$ F 25V	90	ZZ424Z2070	1	1	1	1	P.W.B. Ass'y, Drawer Switch	1	1	1	1	1
△ C302	EA1080251R	1	1	1	1	1	Electrolytic Capacitor, 1,000 $\mu$ F 25V	89	SM010204AR	2	2	2	2	Mini Switch	2	2	2	2	2
△ C303	EA1080351R	1	1	1	1	1	Electrolytic Capacitor, 1,000 $\mu$ F 35V	92	MM016002AR	1	1	1	1	DC Motor, Drawer	1	1	1	1	1
△ FUSE301	FS10100500	1	1	1	1	1	Fuse, 1A 250V	101	ZZ424Z0080	1	1	1	1	P.W.B. Ass'y, Disc Sensor	1	1	1	1	1
△ FUSE302	FS10100500	1	1	1	1	1	Fuse, 1A 250V	102	PM233006AR	1	1	1	1	Phono Motor	1	1	1	1	1
△ FUSE303	FS10100500	1	1	1	1	1	Fuse, 1A 250V	122	ZZ424Z0090	1	1	1	1	P.W.B. Ass'y, Touch Control	1	1	1	1	1
△ FUSE301	FS10080800	1	1	1	1	1	Fuse, T800 mA 250V	118	YF424Z0090	1	1	1	1	P.W. Board, Touch Control	1	1	1	1	1
△ FUSE302	FS10080800	1	1	1	1	1	Fuse, T800 mA 250V	119	SP010101AR	14	14	14	14	Push Switch	14	14	14	14	14
△ FUSE303	FS10080800	1	1	1	1	1	Fuse, T800 mA 250V	120	HI10001080	9	9	9	9	LED SEL1112R	9	9	9	9	9
△ 40	TS100010AR	1	1	1	1	1	Fuse, T800 mA 250V	130	ZZ424Z0100	1	1	1	1	P.W.B. Ass'y, Control (1)	1	1	1	1	1
△ 40	TS100011AR	1	1	1	1	1	Power Transformer	IC101	YF424Z2100	1	1	1	1	P.W. Board, Control (1)	1	1	1	1	1
△ 40	TS100012AR	1	1	1	1	1	Power Transformer	IC102	HC100014AR	1	1	1	1	IC, MP1004	1	1	1	1	1
△ 40	TS100013AR	1	1	1	1	1	Power Transformer	IC103	HC404905B0	1	1	1	1	IC, TC4049BP	1	1	1	1	1
△ 46	YC018002AR	1	1	1	1	1	AC, Power Cord	IC104	HC400100B0	1	1	1	1	IC, LC4001B	1	1	1	1	1
△ 46	YC020002AR	1	1	1	1	1	AC, Power Cord	IC105	HC100015AR	1	1	1	1	IC, $\mu$ PC324C	1	1	1	1	1
△ 46	YC020003AR	1	1	1	1	1	AC, Power Cord	IC106	HC10003090	1	1	1	1	IC, NJM4558D	1	1	1	1	1
△ 46	YC020004AR	1	1	1	1	1	AC, Power Cord	IC107	HC10102030	1	1	1	1	IC, LM6416E	1	1	1	1	1
△ 46	YC020004AR	1	1	1	1	1	AC, Power Cord	IC108	HC408100B0	1	1	1	1	IC, MC14081B	1	1	1	1	1

						Assembly and Wiring	
			(W01-99) (T01-99)				Adjustment
			(X01-00)				Correction

REF. DESIG.	PART NO.	QUANTITY					DESCRIPTION					
		U/C	N	E	A	T						
IC109	HC400100B0	1	1	1	1	1	IC, LC4001B					
IC110	HC400100B0	1	1	1	1	1	IC, LC4001B					
IC111	HC408100B0	1	1	1	1	1	IC, MC14081B					
X101	{ HT309452B0	9	9	9	9	9	Transistor, 2SC945-P, Q					
X109												
X110	{ HT107332A0	5	5	5	5	5	Transistor, 2SA733-P, Q					
X114												
X117	HT405712B0	1	1	1	1	1	Transistor, 2SD571-L, K					
X118	HT206052B0	1	1	1	1	1	Transistor, 2SB605-L, K					
X119	HT206052B0	1	1	1	1	1	Transistor, 2SB605-L, K					
X120	HT405712B0	1	1	1	1	1	Transistor, 2SD571-L, K					
X121	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q					
X122	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q					
D101	{ HD20020050	11	11	11	11	11	Diode, 1S1588					
D111												
D113	{ HD20020050						Diode, 1S1588					
D126												
Q101	FQ04003010	1	1	1	1	1	Ceramic Capacitor, Vi, 400 kHz					
VR101	RA04740020	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming					
VR102	RA04740020	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming					
VR103	RA05030110	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming					
VR104	RA05030110	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming					
VR105	RA022401AR	1	1	1	1	1	Variable Resistor, 220 kΩ, Trimming					
RA101	BW0568301R	1	1	1	1	1	Resistor Comp. 68 kΩ × 10					
RA102	BW0510301R	1	1	1	1	1	Resistor Comp. 10 kΩ × 8					
R182	GM1143202R	1	1	1	1	1	Resistor 82 kΩ, 1/4 W ±1%					
150	MM005001AR	1	1	1	1	1	DC Motor, Tone Arm Drive					
163	ZZ424Z0110	1	1	1	1	1	P.W.B. Ass'y, PR Sensor					
	BY050504AR					1	Voltage Selector					

△

[H01-99] PACKING MATERIALS





# marantz®

**MARANTZ S.A.**  
326 Avenue Louise Bte 32  
1050 Brussels  
Belgium

**MARANTZ GMBH AUSTRIA**  
25 Franz Lisztgasse  
2380 Perchtoldsdorf  
Austria

**MARANTZ BELGIUM**  
4 rue Auguste Van Zandestraat  
1080 Brussels  
Belgium

**MARANTZ DENMARK**  
Bregnerødvej 132b  
3460 Birkerød  
Denmark

**MARANTZ FRANCE**  
4 Rue Bernard Palissy  
92600 Asnières  
France

**MARANTZ GERMANY GMBH**  
Max-Planckstrasse 22  
6072 Dreieich 1  
Germany

**MARANTZ NORSKE A.S.**  
Sam Eydes Vei 11  
1412 Sofiemyr  
Norway

**MARANTZ NEDERLAND B.V.**  
Wagemakersweg 3  
3449 HV Woerden  
The Netherlands

**MARANTZ SVENSKA A.B.**  
Svartviksvägen 56  
161 12 Bromma  
Sweden

**MARANTZ AUDIO U.K. LTD**  
Unit 15/16  
Saxon Way Industrial Estate  
Moor Lane  
Harmondsworth UB7 0LW  
Great Britain

**MARANTZ AUSTRALIA PTY**  
19 Chard Road  
Brookvale, NSW 2100  
Australia

**MARANTZ S.A.**  
Technical and Parts Divisions  
2, Avenue Léopold 111  
B-7120 Peronne-les-binche  
Belgium  
Tél: 064/33, 57, 11  
TWX: 57589 SEPLT-B